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No. 1-2

GENERAL NOTES

Chief Redington Returns to Forest Service.--Secretary Wallace in a press statement issued on February 26, announced that Mr. Redington, who has been Chief of the Biological Survey for the past seven years, would return to the Forest Service in an important administrative position on March 1; that this transfer was brought about at his own request; and that it will make his previous long experience again available to that service, where certain activities are now expanding. Mr. Henderson, Associate Chief, will be acting chief of the Bureau. Secretary Wallace expressed his appreciation of Mr. Redington's services with the Biological Survey in a troublesome period of the Bureau's history and added that the Forest Service will gain the valuable assistance of a well-trained official at a time of increased activity.

Mr. Redington has served the Department for 30 years, 23 years of which were with the Forest Service, where he was assistant chief in charge of public relations when transferred to the Biological Survey, as Associate Chief, on February 16, 1927. On the retirement of Dr. E. W. Nelson from administrative duties on May 9, 1927, he succeeded him as Chief of the Bureau. While in charge of the work of the Bureau Mr. Redington effected a number of administrative changes. The Division of Game and Bird Conservation was established by consolidation of work on refuge and law administration. The Division of Economic Investigations was reorganized and its designation changed to Division of Predatory Animal and Rodent Control, with field work directed by four regional supervisors. The new Division of Land Acquisition was established immediately following passage of the Migratory Bird Conservation Act of 1929, authorizing a nationwide system of migratory bird refuges. A new unit of Wild Life Disease Investigations was established by consolidation of research work in three other divisions. A number of wild-life experiment stations also were established, including the U. S. Rabbit Experiment Station at Fontana, Calif.; the Control Methods Research Laboratory at Denver was reorganized, with five district inspectors; the Food Habits Research Laboratory, also at Denver, was established in connection with control work; other new field stations were the Muskrat Experiment Station in Maryland; forest-fauna field stations in cooperation with the Forest Service; and a temporary field laboratory at Klamath Falls, Oreg., where the cause of western duck sickness was discovered.

Mr. Redington will return to the Forest Service benefited by administrative work on wild life, in which he had previously been greatly interested while engaged on work connected with the forest game resources. He has served the Forest Service in many Western and Southwestern States and in the Washington office. Following his appointment in 1904 he was assigned to work in Montana, Wyoming, and Idaho. As a forest inspector in 1906 he worked in Wyoming, Colorado, and Utah. In 1907 he was advanced to the position of inspector in Montana and the year following was made associate district forester with headquarters in Colorado. From 1911 to 1916 he was supervisor of the Sierra National Forest, California, and from this position was promoted to district forester of the

Southwestern District, with headquarters in New Mexico, and later (1921) of the California District. Between these two assignments he served for a term as city manager of Albuquerque, N. Mex. After administering the 18 national forests of California for five years he was brought to Washington and made assistant forester. Mr. Redington is a native of Illinois, was graduated from Dartmouth College in 1900 and from the Yale Forest School in 1904, where he received the degree of Master of Forestry. During his period of service with the Biological Survey he retained his interest in forestry, served as president of the Society of American Foresters from 1929 to 1931, and was made a member of the President's Timber Conservation Board. In 1929, in appreciation of his efforts for wild-life conservation, he was made a life member of the Academy of Natural Sciences of Philadelphia.

On February 28 members of the Bureau honored Mr. Redington at a special meeting held in the Chief's office. Calling the meeting to order, Mr. Henderson described the occasion as an expression of friendliness and of appreciation of Mr. Redington's personal interest in his associates. "I can truly say," said Mr. Henderson, "that there is not a person in the Biological Survey who will not miss Mr. Redington." He then introduced Dr. W. B. Bell, who, representing the committee in charge of the meeting, presented to Mr. Redington a gift from the members of the Survey and read the following inscription accompanying it:

Presented to
PAUL GOODWIN REDINGTON
for the past seven years Chief of the Biological Survey
by his associates in the Bureau
on the occasion of his return to forest work
28 February 1934
as a token of
friendship, appreciation, and good will
with the hope that it may
serve as a present testimonial of the
high esteem and affectionate regard
in which he is held
because of his interest, so often manifest
in the personal welfare of the members of the Survey
and his efforts to advance the work
for which the Bureau is responsible
and with the hope that as the years pass
the thoughts prompting this gift may be remembered
and may bring to mind
pleasant experiences in the cause of wild-life conservation
happy associations, and the friendships made
in Washington, throughout the States, and in Alaska

That Mr. Redington might remember the sentiments of the Biological Survey staff in his happiest moments, the committee, Dr. Bell explained, had chosen a present that will be with him to add to his pleasure on the greensward, where "perhaps," said Dr. Bell, "there will be a background of trees, a stream with fish, birds singing overhead, chipmunks chippering, and squirrels barking--all bringing to memory days spent in working for wild life." W. E. Crouch then brought in the gift, a set of golf clubs, balls, and a case.

Mr. Redington expressed his appreciation of the sentiment and the gift and his confidence that under his successor the Bureau will continue to "forge its way to its place in the sun." He assured the members of the Survey that in his new capacity in the Forest Service his interest in wild life will continue and there he will be ever ready to assist in coordinating the work for wild life conservation. In parting he said, "not 'adios', which means 'goodby', but 'hasta la vista', 'till we meet again'".

Committee Studies Plan for Game-Bird Increase.—Secretary Wallace, on January 2, announced the appointment of a committee of three approved by the President to outline a course of action under a proposed plan for enlarging the areas on which migratory and upland game birds can breed. The members thus appointed to the President's Committee on Wild Life Restoration are: Thomas H. Beck, of Wilton, Conn., chairman of the Connecticut State Board of Fisheries and Game and editorial director of Collier's, chairman; J. N. Darling, of Des Moines, Iowa, member of the Iowa State Fish and Game Commission, newspaper cartoonist, and member of the Advisory Board, Migratory Bird Treaty Act; and Prof. Aldo Leopold, of Madison, Wis., head of the department of wild life conservation, University of Wisconsin. The committee, on January 10, issued a statement on its preliminary investigations. On February 11 it presented the report of its study to the President, recommending a program to buy submarginal farm land for wild-life production and related purposes and calling for a coordination of Federal conservation agencies under a Restoration Commissioner. The preliminary investigations and the recommendations were summarized in Department press releases issued on January 10 and February 11.

Chief Hails Increased Interest in Wild Life.—A new national movement for wild-life restoration was hailed by Mr. Redington in an address at the American Game Conference in New York on January 24. Speaking on "The Future Job of the Biological Survey", the Chief assured members of the Conference that the Bureau is prepared to take its responsible part in this movement. He pointed to "recent astonishing evidences of interest" in wild life problems by the American public and, referring especially to the movement for establishing wild-fowl sanctuaries, declared that investigations by the Biological Survey have already provided a basis for this work. "We know", he said, "what areas should be acquired, what titles must be obtained, and the expense involved." Mr. Redington spoke of the land-utilization program being considered by the President's Committee on Wild Life Restoration. "I am confident", he said, "that if the plan is approved and put into effect it cannot fail to produce results of the greatest importance and should considerably relieve a situation which justifies the alarm of everyone who desires the perpetuation of the sport of wild-fowling." The full benefits of sanctuaries, however, will not be immediately apparent, he explained, stressing the necessity for conserving the breeding stock of ducks and geese, and pointing out that we cannot restore the missing millions of the birds in the relatively short space of a year or two, no matter how generous may be the contributions for the work. Among other means for assisting the birds, the Chief included prevention of grazing on nesting grounds, local control of the species that at times prey heavily upon waterfowl, promotion of the production and distribution of food plants, fire control, the reflooding of drained lands when practicable, and reduction of the losses from disease.

Other Bureau Members Address Conference.--Biological Survey members contributed papers to the research and game-breeding sessions of the American Game Conference on January 22, as well as to the general sessions on January 23 and 24. On the research program Clarence Cottam discussed "The Eelgrass Situation and Its Effect on Waterfowl", F. C. Lincoln "The Distribution and Migration of the Redhead", and Dr. J. E. Shillinger "Diseases of Wild Life". Dr. Shillinger also presented a "Progress Report of Wild-Life Disease Studies of 1933", by Dr. R. G. Green and himself. On the game-breeding program Dr. L. C. Morley outlined "Nutritional and Hygienic Requirements of Birds on Game Farms". On the first day of the general conference program, Dr. W. B. Bell and Mr. Lincoln participated in a symposium on "The Waterfowl Crisis and the Remedy", Dr. Bell by presenting a paper on conditions in the United States and Mr. Lincoln by discussing "Possibilities of Hand-Reared Waterfowl". On the final day of the conference the Chief discussed "The Future Job of the Biological Survey", Dr. Bell presented a paper by Stanley P. Young on "Our Federal Predator Control Work", and Dr. Shillinger presented another paper by Dr. Green and himself, entitled "Wild-Life Cycles and What They Mean to the Grouse Supply". Mr. Henderson and H. P. Sheldon, also attended the conference.

The Survey's Task and a biographical sketch of Chief Paul G. Redington are presented by Harold D. Carew in the February 1934 issue of Westways, a magazine formerly called Touring Topics, in an article (vol. 26, no. 2, pp. 22-23, 37) under the title and its subtitle, "2,000,000 duck hunters must bag fewer birds: What America's foremost official authority thinks must be done if our wild life is to be protected from predatory animals and equally predatory men." The caption of one of the illustrations of the article reads: "The Tall Pine of the Siskiyou, as Redington is known to his California intimates, spends the bulk of his time in mountain and desert wildernesses contriving schemes for the protection and propagation of beasts and birds in many cases threatened with extinction. "In commenting on the present name of the Bureau the author states: "Even a name intended to be comprehensive and understandable to the scientist is often incomprehensible or misleading to the layman. In these days when advertising experts strive for the arresting word, title, or name, it is undoubtedly true that 'Biological Survey' as the name of an important government bureau doesn't get 'across' with those who want to read as they run. The name has been handed down from the leisurely days when advertising 'appeal' did not have the importance it has today." The author closes his article with a summary of the Bureau's activities and an appeal to all who are affected by it in any way to appreciate the importance of its continuation. "The needs of carrying on the Biological Survey's program is as urgent today", he says, "as when funds were more plentiful." Concluding with a reference to the Survey's work in rat control, he says: "A Bureau engaged in such a war with such an economic enemy is entitled to get whatever it asks for in government appropriations. This rodent is one of the foes of humanity against which war must be relentless."

House Committee on Wild Life Appointed.--Pursuant to a resolution adopted on January 29 (H.R. 237), the Speaker of the House of Representatives on January 30 appointed the following members of the newly formed House Special Committee on Wild Life Conservation: Hon. A. W. Robertson, of Virginia; Hon. Lindsay Warren, of North Carolina

Hon. T. D. McKeown, of Oklahoma; Hon. J. L. Milligan, of Missouri; Hon. Frank H. Buck, of California; Hon. William M. Berlin, of Pennsylvania; Hon. Albert C. Willford, of Iowa; Hon. Albert E. Carter, of California; Hon. Frank H. Foss, of Massachusetts; Hon. Chas. H. Millard, of New York; and Hon. George W. Blanchard, of Wisconsin. The resolution provided that the committee should include the chairman of the Committee on Agriculture (Hon. Marvin Jones, of Texas); the chairman of the Committee on Merchant Marine, Radio, and Fisheries (Hon. S. Otis Bland, of Virginia); and the two House of Representatives members of the Migratory Bird Conservation Commission (Hon. Sam D. McReynolds, of Tennessee, and Hon. Roy O. Woodruff, of Michigan).

Senate Passes Wild-Life Bills.--Three bills concerned with the conservation of wild-life resources were passed by the Senate on February 6. One of these, the so-called "duck stamp bill" (S.2633), would require waterfowl hunters to purchase \$1 stamps to be attached to their State licenses. Of the fund thus provided 90 percent would be devoted to the acquisition, maintenance and development of inviolate sanctuaries and 10 percent to administration costs. The other wild-life bills passed by the Senate on February 6 (S. 2277 and S. 2529) authorized the establishment of fish and game sanctuaries on national forests and provided for coordination between executive departments in considering projects affecting wild-life resources.

CCC Camp Named for Chief.--Company 424 of the Civilian Conservation Corps located on the Swanquarter Migratory Bird Refuge, N.C., recently named the camp "Camp Redington", in honor of the Biological Survey Chief. Mr. Redington attended the dedication exercises, held on January 29. Returning from his inspection of the refuge, he conferred in Raleigh, N.C., with the director and other officials of the State Department of Conservation and Development. With U.S. Game Protector W. L. Birsch, the Chief also observed waterfowl conditions on the Atlantic Coast in North Carolina.

Emergency Work Conducted by Bureau.--In connection with the emergency programs the Biological Survey is conducting several projects on refuges and elsewhere. With funds allotted by the Public Works Administration the Bureau is improving wild-life refuges and controlling rodents on national forests. Through CCC camps it is improving refuges and controlling rodents on Indian reservations. With employees furnished by the Civil Works Administration it has cooperated in typhus-fever control in Georgia, Alabama, and Texas; improving Federal wild-life refuges; compiling maps of refuges; editing accumulated manuscripts of reports on scientific investigations; and transplanting wild animals for relief among the native Indians of south coastal Alaska. Some of the CWA work was discontinued on February 15, including the typhus-control and the manuscript-editing projects.

CWA Workers Help in D.C. Offices.--Eleven employees of the Civil Works Administration have been assisting the Bureau by compiling maps and organizing data from field notes taken on wild-life refuges and on areas proposed for refuges. The work includes the preparation of much-needed atlases of various refuges, data for which have been available for some time. These employees, all of whom are residents of the District of Columbia, are Martha Ennis, Barbara Norcross, Vernon Cassel, Edward James, Ormand Lissak, James McComas, Thomas Muldowney, Benton Rinker, Milton Ritzenberg, Oliver Smith, and Curtis Woodsome. The Bureau also, for several weeks recently had the assistance of two CWA employees editing accumulated manuscripts for reports of biological and food-habits investigations. Both these men, Jenks Cameron and William J. Maddox, had been formerly associated with the Bureau. As a writer in the Press Ser-

vice of the Department, for a time acting in charge of the Service, Mr. Maddox gained familiarity with the Bureau's work, and he later rendered the Bureau service as United States Deputy Game Warden. He is now employed as assistant to the Director of Information, Farm Credit Administration. Mr. Cameron is the author of a monograph on the organization, history, and functions of the Bureau of Biological Survey, published a few years ago by the Brookings Institution. On February 19 he was employed as a special publicity writer at CCC Camp A 1 (Agricultural), Beltsville, Md.

Attend Meeting of Scientists.--Mr. Henderson and Dr. H. H. T. Jackson attended the annual meeting of the American Association for the Advancement of Science, held at Boston, Mass., December 27 to January 2.

Attend Bird-Banding Meeting.--Mr. Redington and F. C. Lincoln attended the joint meeting of the Northeastern Bird-Banding Association and the Federation of the Bird Clubs of New England, Inc., at Boston, Mass., on January 18. Mr. Lincoln spoke on "State Distribution of Returns from Banded Ducks", commenting on a series of papers by him recently published in Bird Banding and illustrating his talk with lantern slides.

Airplanes Used in Bureau's Work.--Information collected in response to an inquiry from an aircraft publication shows that, in addition to traveling to a slight extent by airplane, officials of the Biological Survey during 1933 used airplanes in studying waterfowl conditions, administering refuges, and enforcing laws. In the Illinois River region, Francis M. Uhler used an airplane in making a survey and enumerating duck-hunting areas. On the Niobrara big-game preserve near Valentine, Nebr., Geno A. Amundson used an airplane to enumerate and observe the big-game animals. In connection with planning improvements to be made under the Recovery program, Hugh M. Worcester made an airplane survey of the Clear Lake Bird Refuge, Calif., especially with regard to locating fencing to protect the birds from trespassers. Similarly, Harry E. Magbee flew over the Blackbeard Island Bird Refuge, Ga., to help in locating a suitable site for a lookout tower. Alaska Game Warden Sam O. White owns an airplane and with it patrols a large district in connection with the enforcement of the Alaska Game Law. It is estimated that Mr. White during 1933 flew more than 7,000 miles in this plane.

Exhibit Features Wild Life Restoration.--Three new exhibits were shown by the Biological Survey at the New England Sportsmen's and Motor Boat Show, held in Boston, Mass., February 3 to 10. One of these "exemplifying President Roosevelt's plan for the conservation of wild life" showed marginal land being used by upland game birds and urged farmers to make game a replacement crop. Another new exhibit called "Know Your Birds" included colored transparencies of waterfowl, other game birds, and song birds and mounted specimens of game and song birds. Another showed the natural habitat of Rocky Mountain wild life, and an exhibit was also on display giving the different lines of research and control work of the Bureau, colored slides in a balopticon showing insect pests and the birds that prey on them. Lisle Morrison, who supervised the exhibit, reports that nearly 300,000 persons attended the show.

Motion Pictures on Wild Life Released.--"Beavers at Home" and "Big Game and the National Forests", both 2-reel films, are among the recent presentations of the Office of Motion Pictures of the Department's Extension Service. "Beavers at Home", a Biological Survey picture with subject matter and continuity by Vernon Bailey, shows beaver houses, young beavers, the animals at work repairing dams and felling trees, and ways of catching the animals alive and unhurt. The other new film, in the making of which the Biological Survey and the Forest Service cooperated, brings out the relation of the national forests to the preservation of big game and discusses management problems. Deer, moose, elk, antelope, bison, and bighorn sheep are shown in the wild. The subject matter of "Big Game and the National Forests" is by Harry R. Kylie, of the Forest Service, and Dr. W. B. Bell.

Official Publications have been received as follows:

Improving the farm environment for wild life, by Wallace B. Grange, formerly Cooperative Agent, and W. L. McAtee, Principal Biologist, in charge Division of Food Habits Research. Farmers' Bulletin No. 1719, 62 pp. January 1934. Received January 27.

Bird refuges and game preserves administered by the Bureau of Biological Survey.

(Rev.) Leaflet Bi-1226a, 6 pp. January 20, 1934. Received January 20.

The future job of the U.S. Biological Survey. Address by Paul G. Redington, at the American Game Conference, at New York City, January 24, 1934. 6 pp. Received January 30.

Our Federal predator control work. Address by Stanley P. Young, at the American Game Conference, at New York City, January 24, 1934. 3 pp. Received January 13.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Bailey, Vernon. Dwellers in the desert. Nature Mag. 23 (2): 63-68, 98, illus. February 1934.

----- Humane traps. Nature Mag. 23 (2): 88-91, 100, illus. February 1934.

Cottam, Clarence. Eelgrass disease spreads. Plant Disease Rptr. 17 (11). September 15, 1933.

----- Summer bird records for North Carolina. Bird Banding 51 (1): 94-96. January 1934.

Goldman, E. A. A new climbing mouse from Panama. Jour. Wash. Acad. Sci. 23 (11): 525-526. November 15, 1933.

Henderson, W. C. A critical time for ducks and geese. Amer. Field 120 (47): 527-528. November 25, 1933.

Howell, A. H. The Florida wood rat in the mountains of Georgia and North Carolina--with a correction. Jour. Mammal. 14 (4): 371-372. November 1933.

Jewett, S. G. Fourth record of the Pribilof fur seal on the Oregon coast. Jour. Mammal. 14 (4): 369. November 1933.

----- White-tailed kite (Elanus leucurus) in Oregon. Murrelet 14 (3): 79. September 1933.

----- The season (ornithological): Portland (Oreg.) region. Bird-Lore 35 (6): 335-336. November-December 1933.

Kelso, Leon. A new spectacled owl from Bolivia. Biol. Leaflet 2 : 1. December 21, 1933.

----- A new variety of Glyceria. Biol. Leaflet 3 : 1. January 9, 1934.

----- A note on Otus sanctae-catarinae. Biol. Leaflet 3: 3-4. January 9, 1934.

- Knappen, Phoebe. Insects in the winter food of tree sparrows. Auk 51 (1): 93-94. January 1934.
- Plecoptera as a bird food. Auk 51 (1): 103-104. January 1934.
- The ghost crab. Nature Mag. 23 (1): 47. January 1934.
- Lincoln, F. C. Distribution of returns from geese banded in Alaska and Yukon. Anchorage (Alaska) Daily Times 18 (41): 6-7. November 29, 1933.
- (With Alexander Wetmore, Smithsn. Inst., senior author). Additional notes on the birds of Haiti and the Dominican Republic. U. S. Natl. Mus. Proc. 82 (Art. 25): 1-68. (Sep. 2966). December 4, 1933.
- Banded laughing gull recovered in El Salvador. Condor 36 (1): 36-37. January-February 1934.
- McAtee, W. L. Rejoinder to papers on protective adaptations recently published by the Entomological Society of London. Ent. Soc. London Proc. 81 : 113-126. December 30, 1933.
- Notes on the banded salamander (Ambystoma opacum). Copeia 1933 (4): 218-219. December 27, 1933.
- Planting to attract birds in Indiana. Indiana Audubon Soc. Yearbook (1933): 48-50. 1933.
- The loggerhead. Nature Mag. 23 (1): 21-22, illus. January 1934.
- Tree-hoppers, insects worth knowing. Nature Mag. 23 (3): 118-120, illus. March 1934.
- Mills, E. M. Economic mammalogy, by J. Henderson. (Abstract). Biol. Abs. 8 (1): 281. (No. 2548). January 1934.
- Murie, O. J. Big game range. Eighteenth Amer. Game Conf. Trans.: 253-255. 1932.
- A visit with the great gray owl. Nature Mag. 22 (6): 262-264. December 1933.
- Neff, J. A. Agelaius tricolor nesting in eastern Shasta County, California. Condor 36 (1): 42-43. January-February 1934.
- Nelson, A. L. Some early summer food preferences of the American raven in southeastern Oregon. Condor 36 (1): 10-15. January-February 1934.
- Nelson, E. W., and Goldman, E. A. A new puma from Brazil. Jour. Wash. Acad. Sci. 23 (11): 523-525. November 15, 1933.
- Oberholser, H. C. The literature of vertebrate zoology, by C. A. Wood. (Review). Science 78 (2027): 410-411. November 3, 1933.
- The season (ornithological): Washington (D.C.) region. Bird-Lore 35 (6): 328-329. November-December 1933.
- Preble, E. A. Facts about our fur seals. Natl. Humane Rev. 21 (11): 22-23, illus. November 1933.
- Ransom, Webster H. Wild life refuges real need. Spokesman-Review (Spokane, Wash.), magazine section. January 28, 1934.
- Shillinger, J. E. Disease in wild-life restoration. Amer. Game 22 (5): 71, illus. September-October 1933.

ADMINISTRATION

Appropriation Bill Reported to House.--The Agricultural Department and Farm Credit Administration Appropriation Bill, Fiscal Year 1935, reported to the House on February 20 by its Committee on Appropriations, includes an allotment of \$1,054,084 for the Biological Survey--representing a decrease of \$302,196 from the 1934 appropriation, but an increase of \$36,823 over the cash-withdrawal limitation for 1934 and an increase of \$142,803 over the estimates of the Bureau of the Budget for 1935. Bureau items suf-

ferred severe cuts in the Budget estimates, though supplemental estimates provided increases for predatory-animal and rodent control. Besides approving these supplemental estimates, the House Committee completed the restoration of eliminated items and restored the Budget reduction in the appropriation for the protection of migratory birds. The estimates and the recommendations include a 5-percent restoration of the 15-percent salary reduction now in force. Appropriations, estimates, and Committee recommendations are shown in the following table:

Appropriation	Appropriation for 1933	Appropriation for 1934	Cash withdrawal--1934	Budget estimates for 1935	Recommendation of House Committee	Decrease from 1934 appropriation
<u>Salaries and expenses:</u>						
Administrative expenses.....	\$82,935	\$76,865	\$69,297	\$72,978	\$72,978	\$3,887
Maintenance of mammal and bird reservations.....	82,313	75,000	50,000	52,368	52,368	22,632
Food habits of birds and animals.....	104,810	75,000	71,640	* 20,901	** 75,112	*** 112
Control of predatory animals and injurious rodents.....	573,780	530,000	382,981	#398,982	398,982	131,018
Production of fur-bearing animals	62,455	55,000	49,363	0	51,717	3,283
Biological investigations.....	102,500	85,000	66,279	69,711	69,711	15,289
Protection of migratory birds	214,240	198,190	149,206	118,210	155,085	43,105
Enforcement of Alaska game law.....	103,566	90,000	64,000	66,598	66,598	23,402
 Total salaries and expenses.....	 1,326,599	 1,185,055	 902,766	 471,208	 942,551	 242,504
<u>Upper Mississippi Refuge:</u>						
Administration.....	45,445	43,200	30,584	31,933	31,933	11,267
Acquisition of land.....	34,033	18,500	10,018	1,862	1,862	16,638
Bear River Migratory Bird Refuge.....	32,100	20,000	14,700	15,319	15,319	4,681
Migratory bird conservation tion refuges.....	318,000	89,525	59,193	62,419	62,419	27,106
 Total	 1,756,177	 1,356,280	 1,017,261	 911,281	 1,054,084	 302,196

*Supplemental estimate.

**Including \$21,850 for control-methods research.

***Increase.

#Includes supplemental estimate of \$307,639.

Emergency Funds Increase Total.--The total funds for work with which the Bureau is concerned have been increased from time to time from Federal emergency appropriations by approved allotments totaling \$2,799,570, including \$173,200 for Emergency Conservation Work on refuges, \$1,272,150 of Public Works Administration money, and \$1,354,220 from the Civil Works Administration. The Biological Survey has also received suballotments from the Forest Service and the Indian Service for controlling rodents on national forests and Indian reservations. In addition to the ECW allotment, CCC camps of about 200 men each were established at Blackwater, Swanquarter, and St. Marks migratory bird refuges. Work on the Blackwater refuge was completed in November. National Industrial Recovery Act funds, made available by the Public Works Administration on September 18, 1933, provided for 147 separate projects or operations. These funds continue available until June, 1935, but it is expected that most of the work will be completed by next fall. Civil Works Administration funds were made available to the Bureau in December, and as the allotments expired on February 15, it was not possible to expend all the funds, for the projects were not all continued beyond that date. Only a small portion of the funds approved for expenditure are turned over to the Department for direct expenditure, the remaining amounts being paid out by disbursing offices under the State CWA administrations.

Promoted to Fill Vacancy.--Lee D. Sinclair, of the Auditing Section, has been promoted to the position vacated by the transfer of Walter C. Hunt, clerk, to the Agricultural Adjustment Administration. Mr. Sinclair had served as assistant clerk in the Auditing Section since his appointment in the Bureau, on August 1, 1930. Howard Gammon, junior clerk, was promoted, effective February 16, to the position formerly held by Mr. Sinclair.

Appointed Clerks in Auditing Section.--Effective December 22, 1933, Mrs. Florence P. Marks was reinstated under the NIRA as junior clerk and appointed to assist in the Auditing Section. Mrs. Marks has been employed for short periods in the State and Treasury Departments and in the United States National Museum. From 1930 to 1932, she worked on the National Survey of Secondary Education in the Department of the Interior. She received an A.B. degree from George Washington University, and is now studying in the graduate school in Education at Johns Hopkins University. Mrs. Marks is the author of a research report on social-science teaching in high school, published in the May (1933) School Review.

On December 16, 1933, Carey G. Cruikshank was appointed, by reinstatement, assistant clerk in the Auditing Section, to assist in auditing NIRA accounts. Mr. Cruikshank has been supervising clerk in the Division of Construction and Repairs, of the Navy Department, and civilian inspector in the War Department; has been auditor, office and advertising manager, and continuity writer and radio announcer for private firms; and has written for trade magazines. During the World War he served in the United States Navy. Mr. Cruikshank received an A.B. degree from King College, Bristol, Tenn., and has taken post-graduate work at several institutions and through extension courses in advertising, journalism, and accountancy.

Resigns.--Nick H. Robinson, Jr., assistant messenger in the Mails and Files Section, resigned effective December 25, to accept a clerical position with the Farm Credit Administration. The vacancy created by Mr. Robinson's resignation was filled by the transfer of Robert Nelson from the Bureau of Agricultural Economics on January 18. Mr. Nelson was recently brought to Washington from that Bureau's field office in Denver, Colo.

New Messengers Added to Force.--To care for the many special trips necessitated by emergency work two assistant messengers have recently been added to the force in the mail room. Byron A. Hall reported for duty on February 5, and Thomas J. Kelley, on February 6. Mr. Hall was last employed by the Bureau of Industrial Alcohol, Department of the Treasury, as warehouse watchman; while Mr. Kelley served in a similar position in the Bureau of Prohibition, Department of Justice.

Typist Employed.--Effective February 7, Miss Henrietta J. Lipp was appointed as senior typist to assist in work under the NIRA. Miss Lipp's previous experience includes employment as clerk-typist in the Quartermasters Corps, War Department, and in the Bureau of Prohibition, as well as several years service as secretary, clerk, typist, and stenographer for private concerns in New York City.

BIOLOGICAL INVESTIGATIONS

Bird-Banding Work Increasing.--In spite of efforts to restrict the bird-banding work because of lack of funds and personnel, the volume of work connected with this project is increasing. During the period October 16, 1933, to January 15, 1934--the shooting season--4,569 letters reporting return banding records were received. The record day was December 26, on which, after the Christmas holiday, 224 letters were received. The daily average for the 90-day period was about 50. Since, obviously, the bird-banding section is seriously overloaded, employees in the field can render assistance by explaining the situation to those who may have reported the capture of a banded bird and have not yet received an acknowledgment of their communications. These reports are being cared for as rapidly as possible, and now that the shooting season has closed, it is believed that soon all will be acknowledged.

Biologist Studies Effect of CCC Work on Wild Life.--In cooperation with the Forest Service, the Biological Survey, through E. A. Goldman, recently made an examination of the timber-stand improvement work being carried on by the Civilian Conservation Corps on the Allegheny National Forest, Pennsylvania, where undesirable or badly formed trees are being girdled or felled to promote the growth of a timber crop on cutover areas selected for treatment. Mr. Goldman observed conditions on a number of typical areas, and considered the work with special reference to its effect upon game and other wild life, natural resources of high value in the region.

Observes Waterfowl in South Carolina.--Investigating the status of waterfowl in the coast region of South Carolina, Dr. H. C. Oberholser spent the third week of January on the Cooper River, the Santee River marshes, the area about South Island, and the marshes and ricefields from Charleston south to the lower Edisto and Combahee Rivers.

Take Rodent Censuses on Santa Rita Plot.--Dr. W. P. Taylor, with Dr. Chas. T. Vorhies, of the University of Arizona, is taking censuses of the various rodents on the Santa Rita experimental plot. These censuses will cover a strip 30 feet wide by more than 50 miles long, and it is hoped that they will afford pertinent information on the numbers and distribution of the rodents on all parts of this representative area.

Wood-Rat Studies Progress.--Dr. Taylor reports progress in his field studies on the life history of the wood rat (*Neotoma albigula*). The work is being carried on with Dr. Vorhies. More than 100 wood-rat dens have been carefully dissected, some for each month of the year.

Suggests Plan for Rodent Investigations.--Dr. Walter C. Lowdermilk, assistant director of the new Bureau of Soil Erosion, Department of the Interior, recently requested Dr. Taylor to suggest a plan for rodent investigations on the 100-square mile area to be set aside for range investigations on the Navajo Indian Reservation near Mexican Springs, N.Mex., and Fort Defiance, Ariz. A conference was held with Dr. Chas. J. Whitfield, who will be in charge of the range studies at Mexican Springs, and a preliminary plan was submitted. The Superintendent of the Papago Indian Reservation, near Tucson, Ariz., is likewise interested in determining the role played by rodents on the 2,000,000 acres under his charge.

Report of Ecology of Grasslands Issued.--The Scientific Report of the Committee on the Ecology of Grasslands of North America was recently issued by the National Research Council. Dr. Taylor, one of the seven members of this committee, has been active in calling attention to the important role played by rodents and other animals on grasslands.

Talks on Birds.--On January 8, Dr. Oberholser spoke on birds before the Roland Park Garden Club, of Baltimore, Md., and on waterfowl before the Maryland Academy of Sciences, in the same city.

In Washington.--O. J. Murie arrived in Washington, D.C., on January 7, to confer with Bureau officials and to continue work on his report on the elk of the Jackson Hole (Wyo.) region and on motion pictures illustrating interesting features of their life history. He returned to the West on February 24.

Investigate Deer on Arizona Preserve.--At the request of the U.S. Forest Service, Dr. Taylor, Dr. Vorhies, and local representatives of the Forest Service recently conducted an investigation on the San Francisco Mountain Game Preserve, Ariz., regarding the abundance of deer on the area and their effect on reproduction of pines and other forest trees, on forage, and on general relationships to livestock grazing. The investigators found a large number of deer on the game preserve and damage in some areas. In view of the present abundance of deer, it was recommended that careful watch be maintained and later inspections be made to determine the trend in the deer population and the animals' effect on tree reproduction and forage. Information thus obtained would afford a basis for management practices that should be followed in future handling of the deer and maintenance of the refuge. A brief study was also made of the antelope herds in the East Cedar region of the Coconino National Forest northeast of San Francisco Mountain, where it is estimated that about 2,000 antelope range.

Adirondack "Wolf" Specimen Identified as Dog.--Reports of wolves in the Adirondack Mountains, New York, have been given considerable publicity since early last autumn, when packs of animals reported as wolves were said to have been seen. One

of the animals, shot in the vicinity of Fort Covington, Franklin County, on December 8, was fortunately preserved as a specimen and submitted to the Roosevelt Wild Life Station, Syracuse, and then sent to the Biological Survey for expert identification. The specimen, a tanned skin with cleaned skull, has been determined by Dr. H. H. T. Jackson to be a dog, probably a cross between a German shepherd and a collie. There is no definite record of a timber wolf in the Adirondacks since the early eighties, and the settled country separating the present domain of this animal in Canada from the Adirondacks would seem to preclude any probability of wolves reaching the New York region, and it would seem unlikely that a "pack of wolves" could pass unnoticed through such an area. There have been frequent occurrences of dogs "going native", or becoming feral, and such animals are often great destroyers of game and stock, and may become even more daring and more ferocious than wolves.

FOOD HABITS RESEARCH

Inspects Upland Game Areas.--Mr. McAtee left Washington on February 8 to inspect upland game bird areas in connection with erosion-control projects in Wisconsin. He returned on February 17.

Devoting Farm Areas to Wild Life Discussed in New Bulletin.--A new Farmers' Bulletin (No. 1719-F), Improving the Farm Environment for Wild Life, by Wallace B. Grange, formerly a cooperative agent of the Bureau, and Mr. McAtee, was published on January 27, and demands have already led to a large increase in the edition ordered. This 64-page, illustrated bulletin shows that game, though new as a farm crop deliberately encouraged, has worth-while possibilities as a source of income. By encouraging game and other wild life, farmers can profitably use lands taken out of corn, wheat, and other crops, and to this end the authors make specific recommendations based on experiments and observations in the field. The bulletin discusses methods for increasing the food supply for wild mammals and birds, outlines cover requirements, and recommends means for wild-life protection. It tells how to make a farm-game survey and explains various methods now being used by sportsmen in paying farmers for services and shooting privileges.

Return After Surveying Wild-Fowl Conditions.--The following employees of this Division have returned to the Washington (D.C.) office after completing their work on the general survey of wild-fowl conditions: A. C. Martin, December 20; F. M. Uhler, December 30; Neil Hotchkiss, January 2; and Clarence Cottam, January 19.

Food-Habits Laboratories Report Progress.--The Food Habits Research Laboratory in Denver reports 6,602 accessions and 2,469 examinations of mammal stomachs during 1933. The total number of mammal stomach accessions from the establishment of the laboratory to the end of 1933 is 11,164. The Washington (D.C.) laboratory analyzed the contents of 2,727 stomachs of various kinds during the year, making the total number of stomach analyses to date 116,176. The total number of stomachs received and cataloged in the Washington laboratory to date are: Birds, 198,830; mammals, 7,546; reptiles and amphibians, 4,969.

Biological Survey's Aid Requested in Controlling Injurious Birds.--Three complaints made during the last half of December to the Biological Survey's field men in California exemplify the demands made for the services of the Bureau's experts in controlling injurious birds. The damage complained of included that by crows in almond orchards, by gulls on golf courses, and by horned larks in sugar-beet fields. On a single farm in Riverside County, California, horned larks in fields where sugar beets were being grown for seed production caused losses amounting to \$1,350. The birds pulled up some of the small seedlings as they came from the ground and even stripped the leaves from growing plants. These beets were of a special curly top resistant strain, U.S. No. 1, developed by the Bureau of Plant Industry. The loss of the crop in these fields is a backset to the increased propagation of this variety. Golf-course repairs costing \$1,000 were reported to the Bureau from a club in San Mateo and San Francisco Counties as a result of damage by gulls, which, subsequent investigation by the Bureau showed, were feeding on white grubs. Huge flocks, wrote the club's secretary, settle on a half dozen of the fairways and do serious damage daily to the course; the birds, he said, remove the replaced divots, and the fairways are commencing to look "almost like a ploughed field." On one orchard tract in Monterey County crows destroyed about one-fifth of the year's almond crop, doing damage amounting to about \$1,000, according to an estimate sent to the Biological Survey by the county agricultural commissioner. The Bureau's services are demanded in cases involving the many birds that are protected by Federal law, and from the standpoint of conservation it is fortunate that this duty devolves upon an organization like the Biological Survey, for through knowledge of the food and other habits of the birds, the Bureau's biologists are able to devise control methods that solve the problems without endangering innocent birds.

FUR RESOURCES

Rabbit Meat Served at Luncheon for Congressmen.--The Chairman and members of the Subcommittee of the House Committee on Agriculture desiring a practical demonstration of the color, flavor, and palatability of domestic rabbit meat, the Division of Fur Resources cooperated with the clerk of the House Subcommittee in arranging a luncheon on February 7 for the members of the Committee and their friends. The luncheon was served in the special dining room of the Speaker of the House, those present including Mr. Ashbrook and Chas. E. Kellogg. Judging from the numerous inquiries made of the Bureau's representatives, Mr. Ashbrook reports, all those present were intensely interested in rabbit meat as an item of diet.

Work Under PWA and CWA Funds Stopped.--In accordance with an order from the Secretary, PWA and CWA work at the three fur-animal experiment stations was discontinued because no appropriation for the Division had been provided for in the budget estimates submitted to Congress for the ensuing year. Only that work was continued which if stopped would have jeopardized the interests of the Government. Thus to supply a sufficient number of hutches to care for the rabbits properly and also to complete roads, drainage, and fences, the work at the Rabbit Experiment Station, Fontana, Calif., was continued. The local committee of the CWA permitted 8 men to continue this work, and 3 additional men were given employment under PWA funds. At the fur station on the Blackwater Migratory Bird Refuge, Md., the work was carried on to complete the roofs of the mink and rabbit buildings and to paint these new buildings in order to preserve them from inclement weather. Some work was also carried

forward at the Fur Animal Experiment Station, Saratoga Springs, N.Y., because the feed storage building that was in process of construction had to be finished in order to store feed for the fur animals.

Experiment in Rabbit Feeding Started.--An experiment to determine the relative supplemental value of peanut, soybean, linseed, and sesame meal in feeding rabbits, and to compare moistened versus dry feeding of concentrates, entered its second year in February. Forty-eight New Zealand does, 6 months of age and over, will be used in the experiment. Another new experiment has been started to determine the effect of varying rest periods on does producing 5 litters a year, and to study the relative growth up to 56 days of age of young weaned at 5, 6, 7, and 8 weeks of age. Results of this experiment will aid in determining the proper time to wean the rabbits for the most economical production of meat.

Furs Received.--Pelts of 49 foxes, 8 minks, and 3 martens were recently received from the Fur Animal Experiment Station. Some of the fox skins were produced from the cross-breeding experiments conducted at the station and will be retained as specimens for further study. The remainder of the skins will be examined and graded and then sent to the raw-fur market for sale.

Martens Donated to Station.--A pair of Alaska martens, obtained by Alaska Game Warden Sam O. White from a fur farm near Lake Minchumina, some distance from Fairbanks, were received at the Fur Animal Experiment Station on January 13.

Addresses Meeting of the New England Mink and Fur Breeders Association.--At the meeting of the New England Mink and Fur Breeders Association, held in Boston, Mass., on February 7, Dr. Karl B. Hanson spoke on the findings and the progress of the investigational work being carried on at the station.

Appointment Terminated.--The appointment of John W. Meyer, Director of the Rabbit Experiment Station, at Fontana, Calif., was terminated on February 9. A. E. Suitor, attendant at the station, is acting in charge.

Foxes Pelted at Fur Animal Station.--Dr. Hanson reports that 6 red-, 9 silver-, and 42 cross-fox pelts were taken this season at the Fur Animal Experiment Station. Among the other animals pelted were 8 minks, 3 martens, and 1 fisher. There now remain at the station for breeding purposes 32 silver, 12 cross, and 4 red foxes. 17 martens, 4 fishers, and 14 minks.

Attends Rabbit-Breeders' Meeting.--Chas. E. Kellogg attended the meeting of the Maryland Rabbit Breeders Association, at Baltimore, January 3, and spoke on the experimental work being conducted at the Rabbit Experiment Station. He also discussed current problems experienced by the rabbit breeders of the association. About 60 members were present, and keen interest was shown in what the Bureau has accomplished for the benefit of the commercial rabbit raiser.

DISEASE INVESTIGATIONS

Returns to Richmond.--After working two months in Minnesota in collaboration with Dr. R. G. Green, Dr. L. C. Morley has returned to his official station at Richmond, Va. During his stay at Minneapolis Dr. Morley made a special study of ulcerative enteritis in quail and grouse and investigated the possibility that this disease and tularemia are responsible for the periodic disappearance of grouse. At Richmond Dr. Morley will resume his studies of diseases causing losses among upland game birds, especially as they occur on game farms in the Eastern States.

Studies Pathology in South.--After attending the American Game Conference (see p.4), Dr. Green proceeded to Georgia and Florida to collect material and make studies of pathological conditions in wild species of that region.

Speaks on Iowa Farm and Home Week Program.--Dr. Shillinger left Washington on February 5 for Ames, Iowa, where he spoke at the Game Production Section of the Iowa State Farm and Home Week program. He planned also to visit points in Michigan, Minnesota, and Wisconsin.

Report Cooperative Studies.--Reports on the disease investigations carried on cooperatively by the Biological Survey and the University of Minnesota have been issued in mimeographed form for the various State officials concerned. These reports cover the findings made on grouse, rabbits, and other wild species in Minnesota from July to November. Reports were also issued for the studies made on specimens shipped from Wisconsin and Michigan to the Minneapolis field laboratory of the university.

PREDATORY ANIMAL AND RODENT CONTROL

Budget Bureau Recommends Restoration of Predatory Animal and Rodent Control Funds.--The budget presented to Congress for the fiscal year 1935 carried an item of \$91,343 for the predatory-animal and rodent control work of the Biological Survey. Last year Congress appropriated \$530,000 for this activity, and cash withdrawals were permitted in the sum of \$382,981. The proposed cut included elimination of the Control Methods Research Laboratory, at Denver, an integral part of the control operations. This action aroused so much opposition that a group of Congressmen became interested and, headed by Congressman Lea, of California, visited Secretary Wallace and the Director of the Budget in the interest of restoring the item. Following these conferences President Roosevelt, on January 31, transmitted to Congress a supplemental estimate of \$328,540 for the item, of which \$20,901 is to be available for food-habits investigations in connection with control. If Congress adopts the estimate the cash withdrawals permitted for the fiscal year 1935 will be the same as those of the current year, including funds for the Control Methods Research Laboratory.

Predator Control Recommended as Part of Wild Life Restoration Program.--At a recent meeting in Albuquerque, N.Mex., representatives of the New Mexico Game Protective Association and the Southwestern Conservation League, in a resolution, a copy of which has been forwarded to the Biological Survey, recommended that the President's Committee on Wild Life Restoration be informed of the value of adequate control of predatory animals where needed on reservation lands purchased under the President's program. It was further recommended that the work should preferably be carried on by the Bureau of Biological Survey.

Arizona Appropriates Funds for Predatory-Animal Work.--Following a decision rendered by the Attorney General of the State on January 4, Governor Moeur of Arizona approved an appropriation of \$6,000 for predatory-animal control to be expended at the rate of \$1,000 a month from January 1 to June 30 from funds raised by a State luxury tax. The fund will be handled through the State Livestock Sanitary Board under the supervision of the Biological Survey. Ten additional men were immediately employed.

Rodent Control May Be Continued as ECW Project on Indian Reservations.--The Bureau of Indian Affairs, Department of the Interior, has requested the Biological Survey again to assume active charge of rodent-control activities on Indian reservations during the coming season if Emergency Conservation Work funds are made available for a continuation of the program. Estimates of necessary supplies are being compiled. During the past season under Biological Survey supervision, approximately 350 ECW Indian workers were employed in the control of prairie dogs, ground squirrels, pocket gophers, and other injurious rodents on Indian reservations. The Biological Survey supervised the control work.

Coyote Damage Becoming More Severe.--Owing to the slackening of efforts by Federal, State, and cooperative hunters, made necessary by reduced appropriations, and to the inactivity of private hunters, because of low fur prices during the past year, coyotes and other large predators have been increasing. On the Crow Reservation in Montana, which adjoins the ranch of a large sheep outfit where three years ago there were few coyotes, a private trapper recently caught seven in one day with greyhounds and stated that on the same day he had counted twenty-five. For two years it has been impossible to station a hunter in this section. The poultry specialist of the Extension Service of the University of Wyoming recently advised that, according to a survey made during the poultry-marketing season, predatory animals were causing exceptionally heavy losses throughout the State. It is reported that as high as 50 percent of some flocks have been taken by coyotes and bobcats.

Rat Extermination for Typhus-Fever Control Discontinued.--The Biological Survey's CWA rat-control project, begun late in December as part of a cooperative campaign with the Public Health Service against typhus fever in Georgia, Alabama, and Texas, was discontinued as a Federal project on February 15. The work was continued as State projects under the supervision of the Bureau. About half the area originally intended to be included in the project had been treated with poison baits and followed up by trapping operations for one to three weeks. On the areas covered, the principal typhus foci, the work was practically complete and thus a valuable step was taken toward typhus control, but this did not include outlying areas, which should be treated to prevent reinfestation and to accomplish the full object of the project in eliminating typhus carriers. Many thousands of rats were destroyed, in several instances 60 to 114 being killed in one day's operations by one man. Aside from the protection from typhus fever, this means a substantial saving in preventing damage by these destructive rodents. The project has thus been a worth-while one

from an economic standpoint even though it has not been possible to eliminate typhus foci entirely in the States involved. For several weeks the Washington office and the field offices in the States have been receiving letters asking that the project be continued after February 15. More than 1,200 letters of this kind have been received, indicating that the project has been popular. At the close of the project there were slightly more than 9,000 CWA laborers engaged, out of a total quota of 10,000.

State CWA Funds Approved.--The Oregon State Civil Works Administration approved the employment of 32 predatory-animal control hunters, and the CWA of Wyoming, the employment of 71 hunters. The Texas CWA approved rodent-control projects, and 4 counties have undertaken this work using county funds; also a pocket-gopher-control campaign was approved for the 3,000 acres included in the Medina Irrigation Project, in Texas. State and local Civil Works administrators have approved projects for the control of predatory animals in Washington, Colorado, and Utah.

Assists in Beaver Transplanting.--Stanley G. Jewett reports that as a result of work undertaken in cooperation with the Oregon State Game Commission, 12 beavers were recently trapped alive and liberated in more favorable localities, on the Ochoco National Forest.

LAND ACQUISITION

Recalled From Detail to Forest Service.--Daniel H. Janzen, junior forester, for some months on detail to the Forest Service, has been recalled to assist in the preparation of basic data called for by several special agencies of the Government seeking information about existing and proposed migratory-bird refuges. The larger efforts are directed to classifying lands within proposed refuge sites and determining the basis of their value for agricultural use, which in turn refers to the acquisition of submarginal agricultural lands by the United States.

In the Field.--Arthur A. Riemer, land-valuation engineer, has recently been in St. Louis conferring with officers of the War Department regarding lands that may be submerged by the development of the 9-foot channel along the upper reaches of the Mississippi River. Approximately 26 pools will be created to make the channel, and these pools will in all probability be available as Federal waterfowl sanctuaries. From St. Louis, Mr. Riemer proceeded to the Blackbeard Island Bird Refuge, Ga., and the Savannah River Wild Life Refuge, S.C., to organize engineering parties that will be engaged in studies preliminary to improving these refuges.

Consider Making Refuges of Water Areas Created by U.S.--The Migratory Bird Conservation Commission at a meeting held on December 18, 1933, considered establishing migratory-bird refuges on water areas created in connection with the Federal works programs and other activities and approved recommendations made by the Biological Survey. Since that time the Division of Land Acquisition has been assembling and preparing material that relates to such opportunities. In addition to the 26 pools along the Upper Mississippi River, several projects in the Arkansas Drainage Basin and one in Montana at Fort Peck, where a dam in all likelihood will be built, may also be included. Numerous reclamation projects are under consideration, although studies are required before definite conclusions can be reached.

Condemnation Suit Terminated.--H. W. Hicks and D. E. Woodward, formerly with this Division, were recently recalled from the Forest Service for a week to testify in a contested condemnation suit on the Upper Mississippi River Refuge. The award made by the court was a few dollars per acre in excess of the values found by the Biological Survey, but the jury's findings were, all things considered, exceedingly gratifying in view of the wide divergence of the values found by the owners and by the Bureau.

In Washington.--C. H. Guernsey, engineer employed under funds allotted by PWA, who with Bert J. G. Tousey has been gathering field data in connection with plans for impounding and stabilizing water on the Great Salt Plains Refuge in north-central Oklahoma, is now in Washington reviewing the findings with Fred F. Friend, associate civil engineer, who is also employed by the Bureau under PWA. Mr. Tousey, who has also been carrying on engineering studies on the Big Lake Bird Refuge, Ark., will shortly report to Washington to confer with officials on these projects.

GAME AND BIRD CONSERVATION

Confers with Washington Officials.--United States Game Protector Stephen Creech, of Peoria, Ill., was in the Washington (D.C.) office during the week of January 15 conferring with Bureau officials relative to enforcement of the Migratory Bird Treaty Act in his district.

Appointed.--On December 14, Miss Edna Huff, clerk-stenographer, was transferred to this Division from the Veterans' Administration, to fill the vacancy caused by the resignation of Miss Pauline Nixon, who has accepted a position in the Office of the United States Engineer, at Memphis, Tenn.

Fined for Violating Treaty Act Regulations.--During January, 28 prosecutions for violations of Federal regulations protecting migratory birds were terminated in the northern district of Illinois, 22 with fines ranging from \$5 to \$25. Three defendants were committed to the custody of the United States Marshal for one day, and three others were each sentenced to 15 days imprisonment. On February 2, three persons in Maryland who plead guilty to violating the regulations were fined \$25 each; 381 wild ducks seized at the time of the arrests were donated to hospitals.

Antelope at Charles Sheldon Refuge.--Ernest J. Greenwalt reports that antelope recently appeared in considerable numbers on and in the vicinity of the Charles Sheldon Wild Life Refuge, Nev. Normally these animals would be on their winter ranges 20 to 50 miles east and south of the refuge, but above-normal temperatures for two months and frequent rains instead of the customary snows have kept the lower elevations bare and permitted a slight growth of grass. Conditions thus approximate those of early spring, when the antelope usually return to the summer ranges. "The appearance of antelope in this area in mid-January," says Mr. Greenwalt, "serves to add to the perplexities of the migration problem and raises the interesting question as to whether the animals have not yet gone to the winter ranges or are returning from them."

Unusual Weather Conditions Reported on Refuges.--Protector George M. Benson recently reported that there is practically no frost in the ground at the Lake

Malheur Bird Refuge, Oreg., and that the grass is beginning to grow in many places. "Buds", he says, "are swelling on shrubbery about the station and elsewhere in the valley. Flickers, robins, and meadowlarks have stayed in the locality so far this winter, and many geese have remained on the reservation. Old residents say that never before have they experienced such a lengthy period of mild weather at this season of the year. In some localities the farmers are plowing." Protector Joseph Talla, of the Minidoka Bird Refuge, Idaho, reports: "This is the warmest winter since 1917. The lake is still open, and no snow is on the ground. Conditions for waterfowl are excellent." In a recent report F. C. Winkler, protector of the Belle Fourche Bird Refuge, S.Dak., stated that there had been open water on the lake all during January, and that large numbers of mallards had been present all winter. Feed, he reported, was plentiful and all game birds were wintering well.

Elk Begin to Gather on Refuge.--The weather was unusually warm at the Elk Refuge, Wyo., during December. No snow worthy of note had fallen before the week beginning December 3, when a fall of about 8 inches occurred, causing a large number of elk to migrate to the refuge from the Teton State Game Preserve. Within a week large numbers were gathering on the refuge and the nearby foothills, and by the end of December there were approximately 4,000 there. On December 31 there was scarcely any snow on the meadow lands and the ground was not frozen, though about 15 inches to 2 feet of snow was reported in the mountains. Many visitors came to the refuge during the last 15 days of December, the great herd on the feeding grounds being described as an unforgettable sight. From 1,000 to 2,000 elk were on the meadow near headquarters, and the visitors drove their cars out onto the field among the herd. After the animals reach the refuge they have little fear of automobiles. Owing to the warm weather causing the springs on the Elk Refuge and Flat Creek to remain open, waterfowl this season have remained on the refuge longer than usual.

Special Open Season on Elk Declared.--As no snowfall occurred in the Jackson Hole (Wyo.) region during the regular hunting season, the bulk of the elk herd that were on open territory were driven onto the game preserves. This made hunting them exceptionally difficult during the latter part of the open season, and the number killed was about half that for the two previous seasons. The State legislature, in special session on December 4, enacted a bill again opening the hunting season on elk in Teton County, from December 15 to 31, inclusive. A large area surrounding the Elk Refuge, however, was closed to hunting, as also was part of the migration route between the refuge and the Teton State Game Preserve. During the special open season all the roads into Jackson Hole, except one from the south, were closed to automobiles because of snow. From December 15 to January 2, 636 elk were killed by hunters and checked through the checking station on the Hoback road and 38 were checked out over the Teton Pass road.

Buffalo Shipped to South Carolina.--A 3-year-old buffalo cow was shipped from the Niobrara Game Preserve, Nebr., to Greenville, S.C., as a mate for a young bull in the city park there.

Observes Game from Airplane.--On November 19, Geno A. Amundson, in charge, viewed the Niobrara Game Preserve from an airplane and was able to obtain an accurate check of the buffalo, though on account of air conditions it was necessary to fly at an altitude of 2,000 feet, and it was thus impossible to see the elk on the refuge, as their colors blend with the landscape.

White-tailed Deer Dies at Niobrara.--The white-tailed buck deer on the Niobrara preserve died recently, aged 10 1/2 years. It is believed that its death was the result of complications due to age. This deer was the fawn of a doe shipped to Niobrara from the Wichita Game Preserve, Okla., in 1923. The doe died early in 1924.

Ducks Not So Plentiful.--Ducks are not so plentiful at Niobrara as they were several years ago, but it is believed that quail, prairie chickens, sharp-tailed grouse, and pheasants have increased in numbers.

Waterfowl and Muskrats at Blackwater Refuge.--A marked difference is reported in the duck population at the Blackwater Migratory Bird Refuge, Md., this year from the last two seasons, when the majority were baldpates. This season the baldpates were in the minority during the early part of the season, and during the past month and a half very few have been there. As compared with the baldpates, there have been more teal and black ducks on the refuge, though the total numbers of these birds have been less than last year. More muskrats are apparent than was anticipated after the severe storm of last August. Local trappers, however, report a small catch.

CCC Workers Continue to Improve Refuges.--Improvements on the migratory-bird refuges up to the end of December made possible by CCC workers included the following: At the Blackwater Migratory Bird Refuge, Md., telephone lines, truck trails, and a vehicle bridge have been constructed, three lookout towers erected, trails made, two wells drilled, minor roads improved, fire hazards reduced, and the headquarters dwelling repaired; at the Swanquarter Migratory Bird Refuge, N.C., a cabin, barn, and another out building, telephone lines, and a truck trail have been constructed, and a pond for fish and birds has been excavated; and at St. Marks Migratory Bird Refuge, Fla., a telephone line, truck trails, and 5 bridges have been constructed, a lookout tower has been erected, and the headquarters building has been repaired.

Brant Lack Food in Cold Spell.--Continued freezing weather in New Jersey, reports United States Game Protector Albert Stadlmeir, has been hard on ducks other than the diving species that are able to feed in channel ways and deeper water. Brant have been particularly hard hit, but Mr. Stadlmeir reports an observation indicating that they have profited by the feeding practices of scaups. "The other day", he wrote on February 6, "I was watching about 1,000 scaups and brant in a rather large space of open water. A scaup would dive for food, and as soon as it went under a brant would swim over to the place and wait for the scaup to come up. As soon as the scaup appeared on the surface it would drop what grass it had brought and the brant would seize it. I watched them for about an hour, and the same procedure kept on." This, it is explained, is not piracy, as the scaups feed on the roots and discard the grass.

In Washington.--Ray C. Steele, superintendent of the Upper Mississippi River Refuge, returned to Winona, Minn., after spending several weeks in the Washington office working on matters pertaining to the refuge.

Attends Meeting.--Mr. Steele attended the annual meeting of the Minnesota Game Protective League in St. Paul on January 15. On December 14, he attended the meeting of the Minnesota Division of the Izaak Walton League, held at Minneapolis, and on December 28, he visited the national convention of the Society of American Foresters, in Milwaukee, Wis.

"A Beautiful Sight" on Tule Lake.--"Those who have not seen the massed flocks of migratory birds against the glowing western sky at sunset on Tule lake, have missed one of the most impressive sights the West has to offer," says the Klamath Falls (Oreg.) News in an editorial published on November 27, 1933. "Almost every year, the newsreel people record something of bird life and hunting on Tule Lake . . . But the camera cannot do justice to the real thing. Nor is it necessary to be a hunter to get the thrill that can come from watching the birds at Tule Lake, especially at sunset. They present an amazing and beautiful sight as they circle before alighting on the reserve. If you happen to be watching from certain vantage points, you may see them first sweep into the sunset, just over the line of gray and purple hills. There are countless hundreds of them, there against the colorful background. Then they swing back again toward the lake, and are lost to view in the shadows as they come closer to you beneath the elevated horizon line."

Fire Hazards Refuge in February.--This year, for the first time since the organization of the Upper Mississippi River Refuge, a serious fire hazard occurred in February. Warm weather late in January melted the snow, and then for a week the weather was exceedingly cold and dry, rendering the dead vegetation exceedingly combustible. A number of fires occurred in the La Crosse and Winona areas, and one, fanned by a high wind, burned several hundred acres and a railroad bridge. Occasionally, in fairly mild weather, the fires could be fought with water transported by the tank truck, but in most cases the temperatures were too low to permit the use of water pumps, and the fires had to be beaten out or controlled by back-firing. All lakes, sloughs, and water courses, as well as the main river, were completely frozen over with a heavy sheet of ice. It was a critical time for fires to occur, since considerable numbers of pheasants, quail, and other upland game birds were then obtaining shelter in the refuge bottomlands.

Refuge Attracts Upland-Game Birds.--Scores of winter-feeding stations being maintained in the various ranger districts throughout the Upper Mississippi River Refuge, together with the excellent natural cover, attracted considerable numbers of pheasant, quail, and other upland game birds into the refuge from adjacent areas. The refuge has become a winter haven for upland-game birds--not only residents but also those inhabiting areas for miles on either side.

Appointed.--Joseph G. Teff, of Lansing, Iowa, was recently appointed deputy reservation ranger and U.S. deputy game warden on the Upper Mississippi River Refuge.

Feeds Game Birds on Upper Mississippi River Refuge.--Because of the substantial increase during the past season in the numbers of upland-game birds on the Upper Mississippi River Refuge, it has been necessary to carry on winter feeding operations

more extensively than ever before. The unusually low water level that prevailed on the refuge during the past summer made it possible to raise on certain portions of the area much of the grain being fed. The feeding stations in use include the hopper type for shelled grain and grit, the inexpensive hog-wire type for corn on the cob, and the suspended barrel feeder. A crude shelter of brush, rushes, and grass protect the stations from the weather and from snow. Every effort has been made to accustom the birds as soon as possible to the locations of the feeding stations so that in the event of deep snows or sleet storms they can readily find food.

Deer Increase on Upper Mississippi Refuge.--During the past year there has been a noticeable increase in the numbers of deer on the Upper Mississippi River Refuge. The area is not generally considered a natural deer country, and it is noteworthy that the animals have made their appearance during the recent fall and early winter on portions of the refuge where the species has not been seen for many years.

Channel Construction Keeps Pace.--In the October issue of THE SURVEY in forecasting the extent of construction that would be under way in the Upper Mississippi canalization program by January 1, it was estimated that by that date contracts would have been awarded by the War Department for the building of 9-foot-channel navigation locks at Winona, Minn., and at Trempealeau, Onaska, and Genoa, Wis. The first week in January, however, not only saw work begun on these projects, but in the meantime awards had been made for building locks at Lynxville, Wis., and for constructing dams and dikes across the river bottoms at both Alma, Wis., and Whitman, Minn. Construction started immediately following awarding of the contracts. The locks at Alma, begun about a year ago, have just recently been completed, while those at Whitman are nearing completion. About 1,000 men are employed in clearing timber from the pool areas behind the Alma and Whitman dams. All the construction work mentioned is within the Upper Mississippi River Refuge and will cause a considerable part of the area to be flooded at more or less shallow depths.

Continue Issuance of Wood-Cutting Permits.--The issuance of free wood-cutting permits, begun last fall, to persons in need, allowing them to cut timber from portions of the Upper Mississippi River Refuge which will be inundated by the 9-foot-channel program, is being continued through the winter. Many persons in the several communities along the river in need of fuel and without the means to procure it have been able to avail themselves of the privilege. Up to January 1 more than 1,200 such permits were issued in the La Crosse district alone.

Game Violations on Upper Mississippi River Refuge.--During December rangers on the Upper Mississippi River Refuge obtained evidence on 12 violation cases. Two of these, involving trapping on a closed area of the refuge, were immediately taken into Federal court at Dubuque, Iowa. Upon pleas of guilty, the defendants were each sentenced to serve 30 days in jail, no opportunity being given for settlement through payment of fine. A third case involving trapping on a closed area in Houston County, Minn., is pending disposition in Federal court, the defendant after arraignment before a United States commissioner having furnished the required \$500 bond after he had been confined in jail for a number of days. Two other cases involving trapping

on closed areas of the refuge have been reported for prosecution. A case involving hunting during close season was brought on for trial at Dubuque, Iowa, at the December term, and upon plea of guilty, the defendant was sentenced to 60 days in jail, the sentence being suspended and he placed on probation for the period of one year. The following cases secured by rangers were terminated in State courts, the defendants receiving sentences as indicated: For trapping without a license and for violating the State fish laws--six months at hard labor, the sentence being suspended and the defendant placed on probation for one year; for spearing muskrats--a fine of \$50 and costs of \$12.99; for hunting without a license--a fine of \$50 and costs of \$4.24 (\$45 of the fine being suspended upon payment of \$5 balance and costs); for killing deer in closed season--a fine of \$50 and costs of \$4.24; for hunting after sunset--a fine of \$50 (suspended on payment of costs); for taking game fish--a fine of \$50 and costs of \$9.71, and in addition a valuable seine, boat, and other equipment confiscated; for trapping muskrats in closed season--a fine of \$50 and costs of \$2.50, and in default of payment thereof, 30 days in jail. A defendant apprehended for trapping muskrats on a refuge area in Buffalo County, Wis., was recently sentenced to 30 days in jail. For the illegal possession of game fish contrary to State law, a resident of Winona, Minn., was fined \$50 in State court. Evidence in both cases was secured by Deputy Knopp.

Chinese Mynahs Refused Entry.--On January 8, the Division of Quarantine Administration, of the Department of Agriculture of California, reported to the Bureau that 9 crested Chinese mynahs (*Aethiopsa cristatellus*) were held by an importer at San Bernardino, Calif. The quarantine officials were notified by radio that the birds had been imported unlawfully and that they should be exported or destroyed immediately in accordance with provisions of the Treasury regulations. Agricultural officials of California are fearful that the crested mynahs, which are a menace to agricultural interests, may gain a foothold in the State.

Permits Issued.--During the week ended February 3, the Biological Survey issued permits under the Lacey Act authorizing importation from foreign countries of 5,056 birds and 241 mammals of various species. Three of the shipments were inspected at New York and three at San Francisco. Arrangements have been completed for the importation and inspection of bobwhite quail from Mexico at the ports of Laredo and Eagle Pass, Tex., Mexican authorities having granted concessions for the exportation to the United States of 75,000 quail from February 15 to April 30.

Inspector of Foreign Birds Resigns.--Lee S. Crandall, of the New York Zoological Park, who has held the position of Inspector of Foreign Birds and Mammals at the port of New York, N.Y., since December 1, 1929, resigned from that position on January 16, owing to temporary ill health.

To Collect in Mexico.--Laurence M. Huey, the inspector at San Diego, Calif., expects to spend the next month or so on a collecting trip in Sonora, Mexico, for the Natural History Museum of San Diego.

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No. 3

GENERAL NOTES

Biological Survey Welcomes New Chief.—Members of the Bureau on March 19 welcomed Dr. Jay N. Darling as Chief of the Biological Survey. Gathered in the Chief's office, they applauded as Mr. Henderson presented Dr. Darling and as the new Chief sounded the keynote of his administration. The Biological Survey, he said, not only has a great tradition to uphold but also it has a great and immediate responsibility. Earlier, in response to Mr. Henderson's telegram of congratulation, Dr. Darling had wired, "Thanks. Don't expect any miracles from me, but I will do my best. Please tell the men in the Bureau that it is their work not mine that will count", and in his talk to the members he emphasized this responsibility. Declaring his willingness "to sacrifice every personal prerogative in order that the members of the Bureau might accomplish their tasks", he said: "I am here to stand as a buffer between you and anything that might interfere with this accomplishment." Speaking of the Government's projected purchase of 25,000,000 acres to be retired from production, he pointed out the possibility for wild-life restoration, referred to the Bureau's collection of basic information, and declared that the immediate task is to make these areas of the maximum benefit to the public. In his introductory words, Mr. Henderson spoke of Dr. Darling's national and international influence on public thought as a cartoonist and his accomplishments, deep interest, and courage in wild-life conservation; described to the new Chief the Bureau's staff of workers; and expressed an assurance of their loyal cooperation. Expressing a pride in the Survey members, "with some of whom I have been associated for more than 17 years," Mr. Henderson characterized them as loyal to the Bureau, deeply interested in their work, and willing to sacrifice their own convenience rather than leave the work undone.

Dr. Darling took his oath in the Secretary's office before H. A. Nelson, Chief of the Division of Operation, Office of Personnel and Business Administration, in the presence of Secretary Wallace, other officials of the Department, and a group of newspaper men, just prior to coming to the Survey offices in Building C.

Secretary Wallace announced the appointment of the new Survey Chief on March 10, and in expressing gratification at his acceptance, said, "Probably at no previous time has there existed in this country such a favorable and nationwide approval of the Administration's efforts to reestablish and preserve our valuable wild-life resources. Mr. Darling will be warmly welcomed by all of us here in the Department. He will make a real contribution and I personally look forward with pleasure to our official association." While Dr. Darling (as "Ding") is best known for his world famous cartoons, he is also recognized as a leader in wild-life conservation and restoration activities, a field to which he has devoted many years of his life. Early this year he was awarded the Medal of the Outdoor Life Magazine for outstanding service in the field of wild-life conservation. On June 14, 1933, he was appointed by Secretary Wallace as a member of the Advisory Board, Migratory Bird Treaty Act. Soon after the State Fish and Game Commission of Iowa was established (by act of April 8, 1931), Dr. Darling was appointed as a member of the commission, his 4-year term beginning on May 1, 1931. He is also a member of the Iowa Planning Commission, and of the Des

Moines Park Board. Since January 6, 1934, he has served as a member of the President's Committee on Wild-Life Restoration.

Jay Norwood Darling was born at Norwood, Mich., on October 21, 1876. Three degrees have been conferred upon him: Ph.B., by Beloit (Wisconsin) College in 1900; and Litt.D. and LL.D., by Drake University; he also attended Yankton College, S. Dak., 1894-95. In 1899, he entered the newspaper business as a reporter on the Sioux City Tribune, and one year later went to the Sioux City Journal. On this publication he began his work as a cartoonist, in which his career is well-known--Sioux City Journal, 1901-6; Des Moines Register, 1906-11; New York Globe, 1911-13; Des Moines Register, 1913-17; and the New York Tribune (now the Herald Tribune) and Des Moines Register since 1917. Dr. Darling is a member of the National Society of Illustrators, Beta Theta Pi, Theta Nu Epsilon, Phi Beta Kappa, Sigma Delta Chi, the Lambs Club, the Players Club, the Century Club, and the American Arts Club. He will continue to draw cartoons as his time permits.

Hail and Farewell.--A letter from Dr. W. T. Hornaday, published in the New York Herald Tribune on March 18, says in part: "The appointment by Secretary Wallace of J. N. Darling ('Ding'), cartoonist and nation-wide defender of wild life, to the chiefship of the Biological Survey was a move of tremendous value to the vanishing game birds of North America. All the real defenders of game and decent hunting will hail it with profound joy. Chief Redington fought the game-killing cohorts from January, 1930, right down to March 1, 1934, and drove through many reforms. No wonder he is tired of it all, and glad to go back to the Forest Service. We salute him with a bunch of laurel and a guard of honor. His last four years of wild-life service never should be forgotten . . . Secretary Wallace, the Biological Survey and Chiefs Darling and Henderson now have before them the welcome but inescapable task of making more restrictions on the over-shooting of waterfowl, such as the Federal Government has been working for ever since 1929. The 3,500,000 hunters and sportsmen who in 1931 firmly backed up the demand for less shooting will welcome Mr. Darling as the new chief of the Survey. In addition to that, it is probable that they will back up the Department of Agriculture in making more reforms, to insure the saving of more breeding waterfowl for the new sanctuaries that are about to be made. It will be necessary to force through the three other reforms that are necessary for real game salvage. It is idle to hope that many of the hard-boiled killers can be converted from their old ideas and ways. But it must be thoroughly understood that other reforms in killing practices are necessary and must be made, or else there will be few birds to occupy the new sanctuaries . . ."

Wild-Life Legislation Approved by President.--Three acts of Congress dealing with wild life (see the last SURVEY, p. 5) have been approved by President Roosevelt, as follows: An act authorizing the establishment of fish and game sanctuaries on national forests (Pub. No. 120--73d Cong.), and the Coordination Act (Pub. No. 121--73d Cong.) were approved on March 10. The Duck Stamp Act (Pub. No. 124--73d Cong.) was approved on March 16.

To Coordinate Bureau's Western Radio Talks.--Ira N. Gabrielson, supervisor of the Pacific Region, Predatory Animal and Rodent Control, will act as a coordinator and contact representative of all the Divisions on the west coast in radio matters, in accordance with arrangements recently completed with the Radio Service of the Department. The plan contemplates that Mr. Gabrielson will confer with Bureau officers on the West coast and arrange for the preparation and presentation of radio

talks on Biological Survey activities, during the Western Farm and Home Hour programs, the broadcasting to be by the Bureau field men personally on occasions when possible to be at San Francisco. Final arrangements for the programs will be made with Wallace Kadden, the Department's western radio program director at San Francisco.

Film Popular.--The film "Our Wild Life Resources" was so popular at an exhibit held recently in Kittanning, Pa., that it had to be stopped several times in order to have the crowd move along. In three days 31,000 persons passed through the exhibition hall, and it was estimated that more than 20,000 of the visitors viewed the film, according to a report received by Lisle Morrison. "Our Wild Life Resources," a 2-reel, silent film released in 1933, shows what is being done to preserve our birds and mammals. Many forms of wild life, ranging from quail and ducks to moose and grizzly bears, are shown in their natural habitat, and factors influencing their diminution are brought out. In this connection, the picture includes views of the pathetic, last living specimen of the heath hen. Though already shown throughout the United States, this film is still in constant demand.

Address Virginia Ornithologists.--Members and former members of the Biological Survey were among those addressing the annual meeting of the Virginia Society of Ornithology at Alexandria on March 9 and 10. Dr. H. C. Oberholser and Arthur H. Howell, of the Division of Biological Investigations, spoke on The Birds of the Chesapeake Bay and Potomac River Region, and The Birds of the Coastal Region of Southeastern Virginia and the Carolinas, respectively. Dr. T. S. Palmer, president of the Audubon Society of the District of Columbia and secretary of the American Ornithologists' Union, and Dr. Alexander Wetmore, assistant secretary of the Smithsonian Institution, both former members of the Bureau, extended greetings to the society at the annual banquet on March 10. Others attending the meeting included Miss Phoebe Knappen, of the Division of Food Habits Research, and Miss May T. Cooke and Allen J. Duvall, of the Division of Biological Investigations. On March 10 a field trip was made along the Potomac River.

Secretary Praises Work of Employees.--In an article entitled "Employees Aid National Welfare", by Secretary Wallace, in the March Federal Employee, the following comments are made on Biological Survey workers: "Half a century ago a member of the Department undertook the task of studying the habits, relationships to agriculture, and the economic status of North American birds. This scientist, Dr. C. Hart Merriam, gathered about him some able and energetic field naturalists. He established what is now the Bureau of Biological Survey on the firm basis of scientific research. The usefulness of this Government agency steadily increased. Now its operations embrace also various phases of the Federal protection of game and other desirable species, and cooperative local suppression of certain species that are economically injurious. Merriam's work inspired his immediate successor, Henry W. Henshaw, and successive chiefs of the Biological Survey, to continued efforts.

"Dr. Theodore Sherman Palmer, who became assistant chief of the Bureau, recently retired after 44 years service. He wrote the first draft of the Migratory Bird Treaty with Great Britain. He instituted the annual publication by the Department of Agriculture of bulletins on the game laws, Federal and State, which are distributed in hundreds of thousands of copies. Vernon Bailey, another recently retired member of the Biological Survey, served it for nearly half a century in the fields of ornithology and mammalogy. Few in his chosen field are better known. His scientific confreres have many times honored him by election to the highest offices of their

national and local organizations. Indefatigable, he is continuing his studies of the habits of the native fauna and flora of the country, particularly in the development of humane methods of trapping. He invented and devoted to public use the device known as the Biological Survey beaver trap, by which it is possible to capture beavers alive and uninjured, and thus to move the animals to regions in which they formerly built their interesting and useful dams, but from which they were extirpated by man, tempted by the commercial value of their pelts.

"Edwin R. Kalmbach, another member of the Bureau, discovered how to combat a devastating malady of wild ducks and other waterfowl. He found the epizootic to be of bacterial origin, rather than, as had been supposed, a chemical poison--a form of botulism instead of alkali poisoning. This naturalist finally detected the cause of a trouble to which wild fowl were succumbing by the thousands over many extensive areas in the West. On the Bear River marshes, on Great Salt Lake, Utah, alone, as many as 300,000 dead birds were formerly found in one season."

The article also calls attention to Dr. J. E. Shillinger's contribution to the knowledge of how to treat hookworm disease, made in collaboration with Dr. Maurice C. Hall when Dr. Shillinger was a member of the Bureau of Animal Industry.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Aldous, C. M. The possibilities of the Red Lake Wild Life Refuge. Minn. Conservationist 8: 6, 16, 17. January 1934.

Burleigh, Thos. D. A breeding record for the Florida grackle in the Piedmont region of South Carolina. Auk 51 (1): 91-92. January 1934.

----- Description of a new subspecies of Geothypis trichas from Georgia. Biol. Soc. Wash. Proc. 47: 21-22. February 9, 1934.

Gabrielson, I. N. Plants from the High Olympics in the far Northwest. House and Garden 65 (3): 40-41, 85, 87, illus. March 1934.

Howell, A. H. The type locality of Pitymys parvulus. Jour. Mammal. 15 (1): 72. February 1934.

----- Description of a new race of flying squirrel from Alaska. Jour. Mammal. 15 (1): 64. February 1934.

Jackson, H. H. T. (With H. E. Warfel, Mass. State Col.). Notes on the occurrence of mammals in the regions adjacent to the Salt Plains of northwestern Oklahoma. Univ. Okla. Pubs. 5 (4): 65-72. December 30, 1933.

Knappen, Phoebe. Thirty-fourth Christmas census, southern St. Mary's County, Maryland. Bird-Lore 36 (1): 35-36. January-February 1934.

Lincoln, F. C. A full set of "runt" mallard eggs. Condor 36 (2): 86-87, illus. March-April 1934.

McAtee, W. L. Descriptions of a new genus and eleven new species of Eupteryginae (Homoptera) from the Philippine region. Philippine Jour. Sci. 51 (4): 545-551. August 1933. (Publication date October 30.)

----- Conservation of game or of wild life--which? Sci. Monthly 38 (2): 165-169. February 1934.

Morley, L. C. Diseases of quail in captivity. In American Game Preserve Shooting, by Lawrence B. Smith, pp. 153-160. New York, Windward House, Inc., 1933.

Munch, James C. Antidotes, III, Thallium. Jour. Amer. Pharm. Assoc. 23 (2): 91-94. February 1934.

- Shillinger, J. E. Disease in wild-life restoration (conclusion). Amer. Game 22 (6): 87, 93. November-December 1933.
- Morley, L. C. Studies on ulcerative enteritis in quail. Jour. Amer. Vet. Med. Assoc. 37 (1): 25-33. January 1934.
- Sperry, C. C. A study of hairs and wools belonging to the mammalian group of animals, including a special study of human hair considered from the medicolegal aspect, by John Glaister, Jr. 188 pp. Egyptian University, Faculty of Medicine, Publ. 2, Misr. Press, Cairo, 1931. (Book review.) Jour. Mammal. 15 (1): 74-75. February 1934.

ADMINISTRATION

Bureau Items in Appropriation Bill Unchanged.--The Agriculture and Farm Credit Administration Appropriation Bill, Fiscal Year 1935, was approved by President Roosevelt, on March 26. All items for the Biological Survey as shown in the "Recommendation of House Committee" column of the tabular statement on page 9 of the January-February SURVEY were retained in the bill as it passed both Houses. Since no difference of opinion on the Bureau items had appeared between the House and the Senate, they were also retained unchanged in the bill when finally presented to the President for approval.

Junior Stenographer Employed.--Effective March 9, Mrs. Rilla M. Mehlfelt was appointed junior stenographer to assist in work under NIRA. Mrs. Mehlfelt's previous experience includes employment as stenographer in the Engineers' Office, Department of War, and in the Bureau of the Public Health Service and the Bureau of Internal Revenue, Department of the Treasury. Prior to her departmental service, Mrs. Mehlfelt was employed in the office of Congressman Charles B. Smith.

Transferred.--On March 16, Herman Walter Lanham, assistant messenger in the Bureau since May 1930, was transferred to the Secretary's file room to fill a vacancy in the same position of a higher grade.

BIOLOGICAL INVESTIGATIONS

Summarizes Bureau Contribution to Recreation.--Though the major objectives of the Biological Survey originally were scientific, educational, and economic in establishing the relationship of birds, mammals, and other vertebrates (except fishes) to agriculture, horticulture, and forestry, the knowledge gathered has proved of great interest and value in connection with outdoor recreation, said Dr. Bell, at a Recreation Conference held March 16 to 18 at the Massachusetts State College, in Amherst. He delivered his address, on "The Biological Survey's Contribution to Recreation", at the request of the president of the college. Dr. Bell called attention to Biological Survey publications that are helpful to the public in gaining familiarity with wild-life attractions. He also emphasized the service rendered nature writers by making available vast files of data gathered in investigations conducted by the Bureau's naturalists. He reviewed the varied activities of the Biological Survey in research, in law administration, and in the control of injurious species. The extensive system of wild-life refuges maintained by the Bureau was noted and mention was made of the important conservation legislation recently passed by Congress and

of plans now under consideration for vast expansion of the refuge program in the interest of wild-life conservation and public recreation.

Speaks at Wilderness Club Meeting.--On March 3, F. C. Lincoln spoke at the annual meeting of the Wilderness Club at Philadelphia, Pa., on The Distribution and Migration of Some Eastern Waterfowl. He illustrated his talk with lantern slides of scenes at waterfowl banding stations and with a new type of map, based on banding data and designed by Mr. Lincoln to show the various species' migration routes and the relative width and importance of each route.

Appointed Member of Audubon Waterfowl Committee.--On February 24, Mr. Lincoln received word that he had been appointed one of five members of the Waterfowl Committee of the National Association of Audubon Societies.

Bird-Banding Section Has Record Season.--The volume of return data received by the Bird Banding Section during the recent shooting season broke all records. Between November 1, 1933, and February 1, 1934, it is estimated that at least 6,000 recovery records were reported. As several new waterfowl stations have been opened within the past few months, more wide-spread reports for the 1934-35 season are expected.

Studies Effect of Forest Improvement Work on Wild Life.--From January 14 to 18, E. A. Goldman, in cooperation with the Forest Service, investigated the effect of CCC forest-improvement work on the game and other wild life of the Allegheny National Forest. Special attention was given to the advisability of felling old and defective beech trees, regarded as worthless for timber and allowed to remain standing when areas were logged over. Strict silviculture might include the removal of all these old beech trees, but the nut crops produced afford winter food for game and other wild life of high economic and recreational value. The policy of the Forest Service, therefore, calls for leaving a part of the old beech trees uncut, and it was decided that the timber-improvement work can be carried on to excellent advantage without sacrificing the reasonable needs of wild life.

Canadian Island and Bay Named for Survey Biologist.--A map recently received from the Canadian Department of the Interior shows the location of two geographic features--Preble Island in Great Slave Lake and Preble Bay on Great Bear Lake--the names of which recall a series of reconnaissance trips made 30 years ago by a small party from the Biological Survey. In 1903, E. A. Preble, with a field party consisting of a Slavey Indian and a superannuated fur-trader, in the course of a 16-months' exploration trip in northern Canada, made the first natural-history reconnaissance of the region north of Great Slave Lake. His camps were made on many bodies of water never before visited by a white man; but one, where unmistakable traces of former occupancy were found, proved to be of more than ordinary importance. On a rocky forested promontory the fallen and disjointed ax-hewn timbers of a cross were found. A few carved Roman characters furnished evidence that this cross had been set up by Pere Petitot, a Catholic priest, in 1864. This fortunate find enabled Mr. Preble to identify all the principal lakes in the extensive chain and to settle the uncertainty that until then had prevented the positive identification of the various lakes that Petitot had roughly mapped. Mr. Preble's conclusions as to the proper nomenclature of these lakes were published in his extensive report on the region, issued in 1908 as North American Fauna No. 27. Since then the correct names of the lakes have appeared

on all Canadian maps. Recently the discovery of radium deposits on the shores of Great Bear Lake has led to airplane surveys, and the resulting data have justified the compilation of a new map of the region, which shows a degree of detail that would have been impossible in 1903. In addition to the relatively few lakes revealed by the canoe and snowshoe journeys of 30 to 60 years ago, each route covered by the airplanes has proved the existence of hundreds of bodies of water, ranging in length from a few hundred yards to many miles. These and other studies reveal for the first time the tremendous number of water areas that form the main nursery of the migratory waterfowl that winter in the United States. Geographic features attain respectable dimensions in the North. Great Bear and Great Slave Lakes, with areas of 11,400 and 10,400 square miles, respectively, rank fifth and sixth in size among the lakes of the continent; so an island such as Preble Island, 25 miles long, has plenty of room in Great Slave Lake.

Attends Forest Wild Life Conference.--C. M. Aldous attended the Forest Wild Life Conference called by the Regional Office of the Forest Service on March 2 and 3, and presented a paper on Research Data for Wild Life Management Plans. He also took part in discussions concerning the cooperative relationship of the Biological Survey and the Forest Service in dealing with wild-life matters on national forests and the service that the Biological Survey may render in obtaining information on which efficient wild-life management on forested lands may be based.

North Carolina Beaver Transplanting Successful.--The Biological Survey's introduction about 2 years ago of the beaver into western North Carolina, where the species about 65 years ago was completely exterminated, has met with material success, according to reports recently received from Thos. D. Burleigh, associate biologist, who is studying the relationships of wild life and forestry in this region. The 4 beavers--1 male and 3 females--that were liberated in November 1931 where they would be free from molestation have now, it is estimated, increased to 20 or more. Recently 4 of these were transplanted to a small lake on the Cherokee National Forest in Georgia. This success would indicate that beavers may again become well established throughout the southern Appalachians, where they should prove valuable as a source of fur and helpful in conserving water, preventing floods, and reducing erosion.

FOOD HABITS RESEARCH

Investigate Reported Starvation of Waterfowl.--Clarence Cottam left Washington, D.C., on February 17, to cooperate with United States Game Protector O. D. Steele in investigating reports that because of the heavy ice and snow brought on by an unprecedented period of severe cold, large numbers of waterfowl were starving on the Eastern Shore of Maryland and Virginia. They report that owing to prompt application of relief measures, few birds actually starved to death.

Observes Waterfowl Conditions in North Carolina.--After aiding in waterfowl work on the "Eastern Shore", Mr. Cottam proceeded to North Carolina on February 22, to ascertain the relative abundance of brant and to note waterfowl-food conditions in the Pamlico Sound area. Few brant were observed, although Pamlico Sound is regarded as the principal wintering ground of this species. Mr. Cottam returned to Washington on March 3.

Help Waterfowl on the Potomac.--On February 17 F. M. Uhler and A. L. Nelson investigated waterfowl conditions on the Potomac River between Washington and Mount Vernon. Late in the afternoon they assisted United States Game Protector L. A. Branchaud distribute corn to feed ducks stranded on the ice. Because continued freezing weather had closed most of the feeding areas for the birds, Federal and State authorities aided in supplying corn.

FUR RESOURCES

NIRA Work Resumed.--The Senate having passed the appropriation bill with the item for the production of fur-bearing animals restored, orders have been issued to the directors of both the Fur Animal Experiment Station, Saratoga Springs, N. Y., and the U. S. Rabbit Experiment Station, Fontana, Calif., to resume the NIRA projects that had been discontinued. The NIRA projects being carried on at both experiment stations consist largely of construction work and general improvements that will facilitate research.

Speaks at Rabbit Club Show.--At a table show held by the Bell Flower Rabbit Club, at Linwood, Calif., on March 18, A. E. Suitor, acting director of the U. S. Rabbit Experiment Station, Fontana, Calif., spoke on feeding rabbits and presented data obtained from experiments conducted at the station.

Motion Picture on Rabbit Farming Shown to 4-H Club.--At the monthly meeting of the Cloverleaf 4-H Rabbit Club of Fontana, Calif., held on March 20 at the rabbit experiment station, the motion picture "Rabbit Farming" was shown and the work of the station explained by Mr. Suitor, the club's technical advisor. At the February meeting of the club Dr. F. D. McKenney, of the Bureau's Disease Investigations Project, spoke on the anatomy of the rabbit. Three demonstration teams formed from the members of the Cloverleaf 4-H Rabbit Club are being furnished material by Mr. Suitor for use before public gatherings.

DISEASE INVESTIGATIONS

Talks to Rabbit Breeders.--On March 8, Dr. Shillinger gave an informal talk before the Maryland State Rabbit Breeders' Association on the various ailments that affect the stock in commercial rabbitries. Questions asked by various members, says Dr. Shillinger, indicate a great interest in the prevention of losses from disease.

Studies Wild-Life Disease in Pennsylvania.--In order to study the relationship of wild-life disease to beaver populations, Dr. L. C. Morley left Washington on March 21 for a week of observing conditions in Pennsylvania where beaver trapping is in progress. He also planned to collect information relative to losses caused by disease in grouse and other game birds.

Sick Squirrels Treated.--Called early in March to inspect sick squirrels in the White House grounds, Dr. Shillinger found that some of the animals were suffering from mange. Two of the squirrels were trapped alive by F. N. Jarvis and brought to the Division's laboratory for further observation and experimental treatment. Dr. Shillinger reports as an interesting sidelight, that two young squirrels have since made their appearance.

PREDATORY ANIMAL AND RODENT CONTROL

Regional Supervisors Meet in Washington.--Regional Supervisors Ira N. Gabrielson, D. A. Gilchrist, and L. L. Laythe reported in Washington, D.C., on February 23, to plan for this spring's rodent-control work on national forests and Indian lands, and to confer on routine budget and administrative matters.

ECW Rodent-Control Work to be Resumed.--Plans were being made during March to continue the rodent-control program carried on from ECW camps last year in cooperation with the Forest Service. The Bureau of Indian Affairs, of the Department of the Interior, has also requested the Survey's cooperation in again supervising similar work on Indian reservations. Bureau field leaders working with local Indian Service officials have submitted estimates for the coming season, which contemplate treatment of approximately 5,000,000 acres of rodent-infested lands on 36 Indian reservations in 10 western States. During the last calendar year 3,153,650 acres of rodent-infested lands on national forests and 709,933 acres on Indian reservations were treated from ECW camps. These areas had long been the source of rodent infestation but could not be covered sooner because of lack of funds. Foresters and grazing experts have expressed enthusiastic approval of the results obtained in the first season's work.

Beavers Transplanted in Oregon.--Robert Demaris, employed by the Bureau under NIRA funds allotted for rodent control on national forests, has trapped and transplanted 61 beavers on the Ochoco National Forest, Oreg. These animals were trapped in the lower country, where their activities seriously damaged agricultural interests, and placed on the headwaters of mountain streams, where their dams will help regulate the run-off and hold water for the summer use of livestock. Unusual drought conditions during the past few years have demonstrated to stockmen in this area the desirability of beaver stocking, as in several cases the only water remaining on the range late in the summer has been that impounded by these animals. The Forest Service and stockmen are cooperating with the Bureau in this project by endeavoring to prevent illegal trapping or other disturbance of these transplanted animals. Transplanting not only relieves a damaged area but also preserves valuable fur animals and in some cases helps in regulating the water supply and preventing soil erosion, and it is therefore the control measure employed by the Bureau wherever practicable.

CWA Rodent-Control Project in South Concluded.--The CWA rodent-control project in connection with typhus fever control in Alabama and Georgia was practically concluded on March 15 with the closing of the headquarters office in Atlanta, Ga. During the 3 months this project was under way approximately 8,500 men, including 89 district supervisors, 1,400 foremen, and the Biological Survey officials assigned to the project were employed in the work. Approximately 500,000 premises in the 91 counties involved were treated with red-squill baits. Trapping operations were then resorted to on properties where rats were yet found. According to State CWA officials, the results obtained were excellent, and the project proved the most popular of all Federal works attempted under CWA funds in the territory concerned. Otto E. Stephi, W. E. Riter, and H. H. Haecker, who were assigned to assist Regional Supervisor James Silver and District Leaders Roy Moore and Carlyle Carr in this work, were in Washington, D.C., March 16 and 17, en route back to their respective headquarters at Bozeman, Mont.; Denver, Colo.; and Mitchell, S.Dak.

Frost-loosened Rock Injures Foreman.--While hunting porcupines Foreman A. D. Berry, of the California district, was severely injured recently when he attempted to pull himself up from a porcupine den by grasping a small juniper. The movement of the tree loosened a large boulder weighing several hundred pounds, and it passed over his legs. The rock also struck Mr. Berry on the head and the stiff-brimmed sombrero which he was wearing probably saved his life. He was rendered unconscious, but not before his call of alarm was heard by a fellow worker. Mr. Berry was carried to the truck and taken into Reno for treatment.

Control Porcupines on National Forests.--Two crews of two men each directed by Foreman Robert Hupe on the Tahoe National Forest, Calif., recently shot 88 porcupines in one day's operations, reports Joseph Keyes, rodent-control leader in California. Another 2-man crew on the Lassen National Forest brought in 105 in two days and 205 for the week, 65 porcupines being shot in one day by one man. Winter hunting has accounted for more than 7,500 porcupines shot from trees in this State. The natural reproduction of trees in many areas is seriously damaged by porcupines.

Move to New Quarters.--On February 26 the office of R. E. Bateman, leader in Montana, was moved to Room 216 Federal Building, Billings. Parcel post and express, says Mr. Bateman, should be sent to this address, but letters should be mailed, as before, to Post Office Box 1251.

LAND ACQUISITION

Recalled From Detail to Forest Service.--Harold W. Hicks, assistant land valuation engineer, for some months on detail to the Forest Service, has been recalled to assist in preparing basic data called for by several special agencies of the Government seeking information about existing and proposed migratory-bird refuges. Mr. Hicks has been detailed to the investigation of areas in Minnesota and Missouri. Kenneth C. Kern and Oswald E. Recroft, transitmen, have also been recalled from detail to the Forest Service. Mr. Recroft is to have charge of NIRA work on the Upper Mississippi River Wild Life and Fish Refuge, in Iowa, with headquarters at Winona, Minn. Mr. Kern reported to the Washington (D.C.) office.

Detailed to Big Lake Refuge.--Daniel H. Janzen, junior forester, has been detailed to the Big Lake Bird Refuge, Ark., in connection with proposed acquisition of land.

Returns to the Salt Plains Refuge.--Curtis H. Guernsey, engineer at the Salt Plains Migratory Bird Refuge, Okla., under NIRA, who has been in Washington the past month, has returned to his headquarters.

To Inspect Refuges.--Fred F. Friend, associate civil engineer, employed under NIRA funds, has been detailed to inspect the Salton Sea Migratory Bird Refuge, Calif.; the Salt Plains Migratory Bird Refuge, Okla.; the Big Lake Bird Refuge, Ark.; the Savannah River Wild Life Refuge, S.C.; and the Blackbeard Island Bird Refuge, Ga.

Compiling Statistical Data on Proposed Refuge Sites.--The Division of Land Acquisition has recently been actively engaged in compiling statistical data on proposed migratory-bird refuge sites in order that early consideration might be given to their possible acquisition out of the \$25,000,000-fund allotted by the Administrator of Public Works to the Federal Surplus Relief Corporation.

GAME AND BIRD CONSERVATION

Starving Waterfowl Fed.--Action by the Biological Survey, State game officials, and interested local sportsmen and conservation organizations to provide for starving waterfowl has resulted in the saving of many thousands of birds at ice-covered winter feeding areas in several States this year. The recent cold spell, one of the most severe in recent years, resulted in the death of large numbers of waterfowl, and only timely cooperation prevented a more serious and disastrous mortality. Although Bureau funds were extremely limited, it was possible to cooperate in supplying feed for waterfowl in Maine, Rhode Island, New Jersey, Maryland, and Virginia. Recent reports received from affected areas indicate that much improved conditions were prevailing by the middle of March.

On Long Island, United States Deputy Game Warden John Flynn cooperating with local chapters of the Izaak Walton League and with Boy Scouts provided for ducks and quail. Grain was furnished by the Izaak Walton League and by the State Conservation Department. By obtaining the cooperation of radio Stations Mr. Flynn also made widespread appeals for the smaller birds. On February 20 he wired the stations: "Wild life in starving condition. Please request your listeners to put out bread crumbs, seed, and food for birds. Won't you please repeat as often as possible?" This appeal, Mr. Flynn reports, was broadcast by WEAf, WABC, and WOR in New York, and by WGBB, Freeport. It was repeated, he says, practically every hour up until noon on February 22.

Late in February waterfowl on the ice-covered tributaries of Chesapeake Bay near Cambridge, Md., were fed with grain furnished by the Survey, the Maryland State Game Warden, and local sportsmen. The area covered by the feeding operations included the Blackwater Migratory Bird Refuge. United States Game Protector Orin D. Steele, at Cambridge, reported that the only open water was at the eddy currents of the streams, often a mile or more apart. "Each," he said, "is filled to capacity with waterfowl--ducks, geese, and swans--and all are apparently in serious condition. Scores of dead birds are picked up every day." The report was confirmed by Clarence Cottam, of the Division of Food Habits Research, who investigated conditions in the Eastern Shore region. The species most seriously affected, Mr. Cottam reported, were black ducks, pintails, and widgeons. Canvasbacks also were suffering, but because these birds are accustomed to feed in deep rather than shallow water and because the unfrozen areas were generally farther from shore, this species was not threatened so seriously as were those that normally feed in shallow water.

Feeding operations begun earlier in February under similar circumstances saved large numbers of black ducks, ringnecks, baldpates, and other ducks and coots starving on the Potomac below Washington. The feeding in this area was carried on by United States Game Protector Louis A. Branchaud in cooperation with Virginia authorities and sportsmen. A few of the birds succumbed, but others known to be in a seriously weakened condition regained strength and were able to fly.

Oil Causes Death of Waterfowl.--United States Game Protector B. E. Smith writes that, according to reliable reports, practically at all places in Maine where waterfowl were thought to be starving feeding has been carried on. In one locality, he reports large numbers of birds died but investigation showed that oil was the cause. A steamer, he relates, went on the rocks and the oil floating ashore killed all the waterfowl that came in contact with it.

Earthquake at Bear River Refuge.--Earthquake shocks occurred in the region of the Bear River Migratory Bird Refuge, Utah, on March 12, but careful examination has

failed to reveal any damage to engineering and other structures, and the gas and water wells appear not to have been affected. The center of the disturbance was apparently in the vicinity of Locomotive Springs, Utah, 15 miles southeast of Kelton, on the north end of Great Salt Lake. According to the Salt Lake City Tribune, Professor Pack, of the University of Utah, after inspecting the center of the seismic disturbance, reported that four enormous fault scarps, extending from a quarter to half a mile in length, and fully 50 mud volcanoes, some of which were 4 feet across, with 3-foot craters, marked the epicenter of the earthquake, and that the area presents the most interesting series of earthquake phenomena that Utah has experienced in historic times.

Wild Life at the Charles Sheldon Refuge.--Unusually mild weather conditions continued at the Charles Sheldon Wild Life Refuge, Nev., during February. Antelope were still wintering there at the end of the month. On February 3, when there were more than 1,000 antelope on the refuge, 862 were counted, the largest number noted in a single day's census in 5 years of observation. Since then their numbers have fluctuated widely, the animals retreating to lower country when snow covered the upper levels and returning when it melted. Reports received from southern Oregon and from wide stretches of country east and south of the refuge indicate that the antelope are wintering this year over much of their normal summer range. Forage conditions continue excellent, with short, green grass abundant, and the snow disappearing soon after it falls. A second record for wild-life abundance in recent years was established here during February, when the largest single band of mule deer, 37 in number, was observed on February 13.

Talks on Buffalo.--Dr. Robert S. Norton, protector at the National Bison Range, Moiese, Mont., on February 19 gave a talk on buffalo before the Federal Business Association, of Missoula, Mont. He presented many historical data regarding the animals, as well as information on the present condition of the herds. Dr. Morton J. Elrod, of the University of Montana, who, in 1907, was engaged to examine all available localities suitable for establishing a bison range, and who recommended the selection of the site on which the range is now located, was also a guest at the meeting and made a brief address.

Swan Winters on Elk Refuge.--Protector Almer P. Nelson reports that when making a count of the waterfowl on the Elk Refuge, Wyo., on January 28, he observed one swan, the first one, he says, known to remain on the refuge during the winter.

Wood Donated to Needy Families.--During the past winter 237 loads of wood cut on Sullys Hill Game Preserve, N.Dak., were donated to needy families. The wood was cut by CWA workers engaged in thinning out the timber on the preserve with a view to reducing the fire hazard. The wood was not needed at the preserve, and some of it was hauled 14 to 30 miles.

Fire Damages Blackwater Refuge.--On the morning of February 14, a spark from the sawmill on the Blackwater Migratory Bird Refuge, Md., set fire to a lumber pile. The millmen fought the fire and believed it to be extinguished, when, probably owing to the high wind and the extreme dryness of the grass, it broke out again and reached the edge of the marsh. With the aid of 10 men, the entire crew of the sawmill, the fire was finally put out. Because of the high wind, the quantity of dry grass, the

frozen ground, and the lack of water in the marsh, fighting the fire proved extremely difficult. Approximately 20 acres of marsh and abandoned agricultural land were burned over, and several muskrat houses were destroyed.

Exhibits Wild-Life Pictures.--Hugh M. Worcester, protector in charge of Tule Lake and Clear Lake Bird Refuges, Calif., and of Upper Klamath Wild Life Refuge, Oreg., exhibited pictures of wild life at theaters in Chiloquin and Klamath Falls, Oreg., on February 5, 7, and 8, to high school students, members of a local lodge and a sportsmen's association, camp-fire girls, and others.

Geese Arrive at Tule Lake Refuge.--Mr. Worcester reports that early in the morning of March 2, when he went to patrol the east side of Tule Lake Bird Refuge, Calif., and observe the birds, he found a large concentration of geese in the fields. Just at daylight he saw at least 5,000 white-fronted geese and only 6 snow geese. Shortly afterward the snow geese began to arrive, and before they had all alighted they covered 22 acres. At least 1,000 more white-fronted arrived in this field, making a total of 6,000 birds of that species. Mr. Worcester was of the opinion that this large number probably constituted the main spring migration there of both species. He saw only 95 cackling geese in the field. Later in the morning he observed another large flight in an adjoining field, and estimated that 10,000 snow and about 1,000 white-fronted geese were there. Another flight some distance away included 1,200 snow geese. On this trip Mr. Worcester heard a few Canada geese, but did not see any.

Studies Methods of Controlling Duck Sickness at Salton Sea.--In February, E.R. Kalmbach, of the Division of Food Habits Research, made a trip of brief duration to the Salton Sea Migratory Bird Refuge in the Imperial Valley of California to determine to what extent duck sickness might be controlled through diking and water manipulation. Though there is an abundance of water, even during midsummer, difficulties present themselves, he reports, in handling silt and in the possible future fluctuation of the elevation of Salton Sea. Should the construction of the Boulder Dam, with additional desilting works, remove the silt problem, and should a maximum elevation of the sea be established through agreement with users of irrigation water, there would be a marked improvement of the refuge. The creation of areas of fresh, clear water would afford a habitat for submerged aquatic plants now largely absent because of the turbidity of the Colorado River water.

Returns to Refuge Headquarters.--Vanez T. Wilson, assistant to Superintendent George E. Mushbach of the Bear River Migratory Bird Refuge, Brigham, Utah, who had been on detail in the Washington (D.C.) office since October assisting in work connected with NIRA projects, returned to his headquarters in Utah on March 3.

Detailed to Washington Office.--Harold F. West, who has been acting as camp superintendent at the Swanquarter Migratory Bird Refuge, N.C., has been called to the Washington (D.C.) office to assist in work connected with NIRA projects.

Inspects Bird Refuges.--R. O. Gustafson, assistant in the reservations section, has left Washington to inspect CCC camps at St. Marks Migratory Bird Refuge, Fla., and the Swanquarter Migratory Bird Refuge, N.C. He will also visit the Black-beard Island Bird Refuge, Ga., and the Savannah River Wild Life Refuge, S.C.

Another CCC Camp Assigned to Biological Survey.—A CCC camp was recently assigned to the jurisdiction of the Biological Survey for work on the Niobrara Game Preserve in Nebraska. This increases to four the number of CCC camps on Biological Survey work, activities continuing at the Swanquarter Migratory Bird Refuge, N.C., the St. Marks Migratory Bird Refuge, Fla., and at the recently established camp on the Crescent Lake Migratory Bird Refuge, Nebr. A State camp has been located within the boundaries of the Niobrara Game Preserve and has done some work there during the past six months. It was contemplated that this camp would be continued under the jurisdiction of the State or the National Park Service, but it was later determined to place the camp directly under the jurisdiction of the Biological Survey. The work to be done includes constructing roads and trails, cleaning out down timber and other work for the removal of fire hazards, and constructing dams and wells for water conservation and development. The Niobrara Preserve, on the Niobrara River about 4 miles east of Valentine, is both a bird refuge and a big-game preserve, where herds of buffalo, elk, and antelope are maintained. The area also is frequented by ducks, shore birds, prairie chickens, sharp-tailed grouse, and quail.

Quail Imported from Mexico.—Although the quail season opened on February 15, no shipments were received from Mexico until March 7, when a consignment of 485 arrived at Laredo, Tex. Another shipment containing 575 birds arrived at Laredo on March 9, making a total of 1,060 quail imported during the week ended March 10. These were examined on arrival at the border and, with the exception of one consignment of 60 birds, which went to Alabama, all were shipped to various points in Texas. To date no entries have been made at Eagle Pass or Brownsville.

Inspector Returns From Panama.—Mrs. M. E. Davidson, one of the Bureau's inspectors of foreign birds and mammals at San Francisco, Calif., returned to that city early in March after spending several weeks in Panama collecting natural-history specimens for the California Academy of Sciences.

Hungarian Partridges Imported from Canada.—Considerable activity was manifested during the past month in the importation of Hungarian partridges from Canada. Permits were issued for 16 shipments, including a total of 2,135 partridges, the bulk of which were consigned to the North and South Dakota game and fish departments. Most of the shipments were made from Moose Jaw, Saskatchewan, and Leduc, Alberta.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE

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GENERAL NOTES

Chief Calls for Action.—"The next order of the day is to work, not talk", said Mr. Darling, on April 20, in outlining "Our Job of Planning for Wild-Life Restoration". His talk, delivered in Chicago at the 12th annual convention of the Izaak Walton League of America, was broadcast during the National Farm and Home Hour by the National Broadcasting Company and associated stations. "So much has been said about conservation", declared the Chief, "that it hardly seems necessary to say anything more until we do something. The idea of conservation has been pretty well sold in this country, and it is now time to deliver the goods". Stressing the need for wild-life restoration, he recalled that the phrase-making Franklin "in one of the most quoted but least heeded of his proverbs admonished us that forever taking out of the barrel and never putting anything in soon exposes the bottom", and, said Mr. Darling: "We have been doing just that--forever taking out and putting nothing in--and the bottom of the barrel is now in sight. . . . Let us begin to put something back". Pointing to the Federal Government's leadership in promoting restoration and to the fact that all needed agencies are available, he urged individuals, communities, and States to cooperate in a national conservation program. "Conservation", he concluded, "must and should begin at home. It is everyone's job, and there is no time to waste".

Mr. Darling also spoke at the convention on "Developing the Upper Mississippi River Wild Life and Fish Refuge".

Goes After Facts on the Waterfowl Problem.—We could solve our difficulties much more readily if everybody interested in our waterfowl resources knew just what the problems are, said Mr. Darling, on April 23, in a press release announcing an intensive fact-finding and educational program. "We Americans", said the Chief, "have been shooting ducks in the past without knowing whether or not we have enough to kill. This year we expect to have accurate, up-to-date knowledge on the waterfowl conditions on this continent. On the facts we are gathering is going to depend the 'take' that will be allowed to shooters this year. And we are not going to guess at the matter. Naturalists of the Biological Survey will be making special investigations on wild-fowl breeding grounds this spring, and other employees of the Bureau and many co-operators also will be carefully observing conditions in their own localities. Sportsmen, conservationists, and nature lovers generally, for their own special reasons will await with interest the verdict to be reached". The basic facts, Mr. Darling explained, have been obtained by the Biological Survey over a long period and have been made widely available. As an aid to a general understanding of the present situation, a series of maps showing the principal breeding ranges of the most important game birds has recently been devised in the Division of Biological Investigations. Each map shows also the areas over which the species is shot for sport in the United States and Canada. Appended to each is a concise explanation, and accompanying the series is a statement describing the conditions affecting the entire group of birds. "A study of this series of maps, and a consideration of the brief statements that accompany them", says Mr. Darling, "should emphasize our obligation to throw all possible safeguards around these valuable species". Copies of the maps are mailed on request to editors of outdoor periodicals and to conservation officials and other leaders interested in making known the facts about America's waterfowl problems.

President Allocates \$1,000,000 for Waterfowl Restoration.--One million dollars of Emergency Conservation Work funds were allocated for migratory-bird restoration purposes by President Roosevelt on April 19, by Executive Order No. 6684 authorizing the purchase and rental of lands as refuges for migratory birds and other forms of wild life that constitute a diminishing natural resource. The order was issued under the provisions of the Unemployment Relief Act. Acquisition and proper development of the refuge lands will provide protection not only for the depleted wild-life resources but for the lands themselves. The work incident to acquisition and improvement will also provide employment on useful public work. Mr. Darling, in expressing his satisfaction over the action of President Roosevelt, said that this is the first real opportunity we have had to restore to our birds some of the areas we have taken from them. "Various promotion schemes", he said, "have robbed the birds of more than 17,000,000 acres of nesting areas and homes for the young. Now we shall have a real chance to put some of these lands and marshes back to their proper uses--for the birds. Their restoration, however, is all part of the general movement for the conservation of our natural resources, and it parallels and aids efforts in flood, forest-fire, erosion, and insect-pest control. We can visualize the ultimate success of the plans now forming. All who have the real welfare of our birds at heart can now stop talking for a while and actually get down to work. With the Biological Survey well equipped for a good start, the Government is doing its part. It is essential also that neighborhoods realize their responsibilities and not neglect their own duties".

Submarginal-Land-Acquisition Plans Announced.--In a statement to the press on April 10, the Federal Surplus Relief Corporation announced plans on which submarginal land will be acquired by the Federal Government. "Self-sustaining land-use activities should be established", said the statement, and "to serve that purpose the Public Works Administration has allocated \$25,000,000 for the purchase of land in problem areas and for the testing of plans by which a rational Federal and State land policy may be developed for such areas. The plan is to set up submarginal-land-acquisition projects in regions, first of all, where local relief problems are most acute". Those who wish to present plans for a submarginal-land-acquisition project must, it is outlined, "be prepared to satisfy the Federal Government (1) that the project includes land now used for agricultural purposes but which normally does not yield sufficient income to provide reasonably adequate living conditions for the occupants thereof; (2) that there can be a satisfactory public use for acquired land, such as for forests, grazing areas, parks, recreation areas, bird or game refuges, soil stabilization, etc.; (3) that the settlers now on the land will cooperate, voluntarily, in the necessary resettlement; and (4) that the plans for resettlement are adequate in providing new opportunities". Project proposals will be subject to examination and approval by the Submarginal Land Acquisition Committee of the Federal Surplus Relief Corporation, but "primary responsibility", says the statement, "for detailed consideration and planning of permanent management will rest with the existing public agency mainly concerned--such as the National Park Service for park projects and the Biological Survey for game refuges".

To Demonstrate Wild-life Management.--The Biological Survey has been assigned a tract of land on the expanded holdings at the Department's Beltsville (Md.) experiment station upon which to demonstrate methods of wild-life management, and work has already begun. It is proposed, consistent with the purposes for which established, to make the entire Beltsville development a wild-life refuge and that the Biological Survey shall suggest plans for the betterment of wild-life conditions, so far as

practicable, on all parts of the area. The work will include a study of the relation of wild life and its management to farm practices.

New Wild-Life Regulations Issued by Secretary.--Secretary Wallace, on April 19, announced two new regulations for the control of hunting and fishing in the national forests. Under these regulations, said a Department press release, it will be possible to extend or to shorten hunting and fishing seasons in the national forests with a view to managing the wild-life resources of these Federal properties so as to conserve both the timber and soils of the forests and the animals, birds, and fish. The Chief Forester has stated that the Forest Service plans to apply the new regulations only where present cooperative arrangements for managing the wild life have proved inadequate.

U. S. Information Service Established.--The National Emergency Council has recently established the United States Information Service, with Washington, D.C., headquarters at Room 500 of the Commercial National Bank Building, 14th and G Streets, NW.; telephone number, DIstrict 4030. The Service will function as a directing center for all Federal Government agencies and emergency organizations to enable persons seeking general information or contact with some particular phase of governmental activity to obtain helpful guidance. The organization of the Government has been reduced to chart form for convenience in explanation, and the names of heads of bureaus and divisions who can provide more particularized information on specific subjects will be on file. The Service does not make appointments but directs the inquirer to the office at which appointments may be arranged. Additional information offices are being established throughout the country under the supervision of the State Directors for the National Emergency Council.

Bureau Films Shown in Utah.---During two weeks in April the films "Our Wild Life Resources" and "Duck Sickness, A Menace to Western Waterfowl" were shown to 5 Utah audiences including about 950 persons, according to a report from George E. Mushbach, superintendent of the Bear River Migratory Bird Refuge. To each audience Mr. Mushbach explained the purpose of bird refuges and spoke on waterfowl conditions and the proposed restoration programs. The films were shown to the Izaak Walton League in Salt Lake City, the Box Elder Fish and Game Association in Brigham, the Men's Club in Logan, to intermediate-grade school children and a few adults in Corinne, and at CCC barracks in Woods Cross. In each instance, says Mr. Mushbach, the films were well received and apparently aroused great interest.

Bureau Party a Reception for New Chief.---Combining a reception for Mr. Darling with an evening of entertainment, members of the Bureau on April 4 held the fifth annual Biological Survey party in the ballroom of the Kennedy-Warren Hotel, 3133 Connecticut Avenue. Those present included Department officials, former members of the Survey, and a number of Bureau field men who were on detail to Washington.

Guest of Honor.---Mr. Darling and Mr. Henderson, on April 28, attended a buffet luncheon given by the Annapolis (Md.) Chamber of Commerce in the Carvel Hall Hotel, Annapolis. Mr. Darling was the honor guest.

Entertained by Cartoonist.---Clifford K. Berryman, cartoonist of the Washington (D.C.) Evening Star, was host to Mr. Darling at a dinner at the University Club,

on April 27. On the menu cards were Berryman's bear and "Ding's" duck, Mr. Berryman contributing the bear and Mr. Darling the duck.

Official Publications have been received as follows:

Feeding schedule for rabbits. Leaflet Bi-1317, 1 p. March 1934. Received March 17.
North America's waterfowl problem. Prepared in the Division of Biological Investigations. (Multigraphed, unnumbered.) 3 pp., accompanied by 24 annotated maps. April 23, 1934. Received April 30.

Emergency conservation work in relation to wild life in the Allegheny National Forest, Pennsylvania, January 15-19, 1934. By E. A. Goldman, Senior Biologist. (Mimeographed by the Forest Service.) 7 pp. Undated. Received April 30.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

COTTAM, CLARENCE. Incursion of American scoters in Norfolk, Connecticut. Auk 51 (2): 228-229. April 1934.

GABRIELSON, I. N. Some Oregon specimens worthy of record. Murrelet 15 (1): 25. Jan. 1934.

----- The herring gull on the Columbia River. Murrelet 15 (1): 25. Jan. 1934.

----- A slate-colored junco record for California. Murrelet 15 (1): 26. Jan. 1934.

----- American egret (Casmerodius albus egretta) (Gmelin) in Portland, Oregon. Murrelet 15 (1): 25. Jan. 1934.

----- The Canadian Rockies. House and Garden 65 (4): 36-37, 92, 97, illus. April 1934.

HCWELL, A. H., and BURLEIGH, THOS. D. Notes on the occurrence of certain birds in Princess Anne County, Va. Auk 51 (2): 249-250. April 1934.

JEWETT, S. G. The mystery of the marbled murrelet deepens. Murrelet 15 (1): 24. Jan. 1934.

----- Waterfowl conservation on the Pacific coast. Natl. Waltonian 1 (8): 6-7, illus. Feb. 1934.

----- The season (ornithological): Portland (Oreg.) region. Bird-Lore 36 (2): 120-121. March/April 1934.

KELSO, LEON. A key to the owls of the genus Pulsatrix Kaup. Auk 51 (2): 234-236. April 1934.

McATEE, W. L. The exotic birds of Hawaii, by Edward L. Caum. Occas. Papers, Bishop Mus. 10 (9), 55 pp., 1933. (Review). Condor 36 (2): 92. March/April 1934.

MILLER, J. PAUL. The place of game management in New England forestry. Jour. Forestry 32 (1): 47-51. Jan. 1934.

NELSON, A. L. Les rapaces d'Europe, leur regime, leurs relations avec l'agriculture, et la chasse, by P. Madon. Chez l'Auteur, 5, Avenue Vaubon, Toulon, France, 292 pp. 1933. (Review). Auk 51 (2): 258-261. April 1934.

OBERHOLSER, H. C. The season (ornithological): Washington (D.C.) region. Bird-Lore 36 (2): 113-114. March/April 1934.

SHILLINGER, J. E. (with R. G. GREEN, senior author, N. R. ZIEGLER, S. H. TYLER, and E. T. DEWEY, Univ. Minn.). Epizootic fox encephalitis, V: General and pathogenic properties of the virus. Amer. Jour. Hyg. 19 (2): 343-361. March 1934.

----- (with R. G. GREEN, Univ. Minn., senior author). Epizootic fox encephalitis, VI: A description of the experimental infection in dogs. Amer. Jour. Hyg. 19 (2): 362-391, illus. March 1934.

TAYLOR, W. P. Some animal aspects of reforestation and erosion control. Jour. Forestry 32 (1): 8-10. Jan. 1934.

BIOLOGICAL INVESTIGATIONS

Studies Elk on Olympic National Forest.—At the request of the Forest Service, O. J. Murie is studying conditions affecting the elk on the Olympic Peninsula, Wash., especially on the Olympic National Forest. Biological Survey cooperation was requested in view of herd-management problems that have arisen. State game officials also are cooperating in the undertaking.

Analyze Results of Reindeer-Grazing Investigations.—L. J. Palmer and Charles M. Rouse have been engaged in analyzing data resulting from reindeer-grazing investigations conducted during the past 10 years by the staff of the Reindeer Experiment Station, College, Alaska.

Continues Waterfowl Studies.—L. J. Goldman has completed his investigation of winter waterfowl conditions in California, and is now engaged in field observations in Oregon, Idaho, Montana, and North Dakota. Later he will proceed to the waterfowl breeding grounds in the Prairie Provinces of Canada to continue his studies during the spring and summer months.

Talks on Wild Life.—On March 23, A. H. Howell lectured on birds at the James Madison School, Clarendon, Va., illustrating his talk with specimens from his own collection. On April 21 he addressed the Biological Society of Washington on "The Mammals of the District of Columbia and Vicinity," using both specimens and slides for illustrations.

Bands Thousands of Ducks.—E. A. McIlhenny, of Avery Island, La., a cooperator of the Bureau, reports that during winter and early spring he banded several thousand ducks, chiefly pintails. Over a 3-year period duck catches on 13 different days numbered more than 500, the largest total being 1,514, on December 12, 1933. Mr. McIlhenny also was able to capture a fair number of blue geese. On November 12 he banded 87 of these birds, part of which were obtained by his men running into the flock and seizing the birds before they could take wing or get away by hiding. In cooperation with the Biological Survey, Mr. McIlhenny has on several occasions tested the homing instinct of ducks for their particular migratory flyways by shipping banded ducks to prearranged points where the birds were liberated in favorable areas. Pintails retrapped at Avery Island during the past season included 4 thus released at Washington, D.C., 3 at the Blackwater Migratory Bird Refuge, Cambridge, Md.; 4 at the O. L. Austin Ornithological Research Station, North Eastham, Cape Cod, Mass.; 11 at Berkeley, Calif.; 2 at the Lake Malheur Migratory Bird Refuge, Volgate, Oreg.; and 5 at the National Bison Range, Moiese, Mont.

Field Laboratory Completed.—With NIRA funds, the Bureau has recently completed a small biological field laboratory at the headquarters of the Santa Rita Experimental Range, a substation of the Southwestern Forest and Range Experiment Station administered by the Forest Service, in Florida Canyon, Santa Rita Mountains, 10 miles east of Continental, Ariz. Work is beginning on a similar field laboratory near the Elden Ranger Station, 5 miles east of Flagstaff, Ariz.

Take Rodent Census.--In continuation of studies of relations of burrowing rodents to grazing conditions on southwestern ranges, a count of these animals on a strip on the Santa Rita Experimental Range 20 to 30 feet wide and 56 miles long has just been completed by Dr. Walter P. Taylor in cooperation with Dr. Chas. T. Vorhies, of the University of Arizona. The census provides information for a better understanding of rodent distribution, especially as related to vegetation and soils.

Talks at CCC Camps.--At CCC camps at Tanque Verde, Rincon Mountains, and White House Canyon, Santa Rita Mountains, Ariz., Dr. Taylor recently spoke on the wild bird and mammal life of the State.

Appointed.--Miss Kathleen M. Marnell on April 10 reported for duty as clerk-typist under temporary appointment to assist in the bird-banding record work.

FOOD HABITS RESEARCH

Inspect Wild-Life Conditions at Indian Head.--On April 6, Mr. McAtee and Clarence Cottam surveyed wild-life conditions at the Indian Head (Md.) Naval Reservation with a view to suggesting improvements that can be carried on by the CCC camp there.

Observes Brant and Eelgrass Along New Jersey Coast.--From March 26 to April 2, Mr. Cottam investigated eelgrass conditions and observed the numbers of brant along the coast of New Jersey and Long Island, N.Y. He reports that brant were alarmingly scarce, and eelgrass conditions though bad in general showed improvement locally.

FUR RESOURCES

To Determine Prime Fur Period.--On March 29 and 30, Mr. Ashbrook and C. E. Kellogg marked and regraded all the muskrat pelts taken during the past year on the Crescent Lake, Blackwater, and Bear River Migratory Bird Refuges. These pelts are now being graded by representatives of the fur trade, after which they will be dressed and revalued. The purpose of this work is to determine the prime-fur periods for taking muskrats on these refuges. This experiment will be extended to include other fur animals on the refuges.

Fox Pelts Appraised in New York.--Mr. Ashbrook with Dr. Karl B. Hanson, Mr. Kellogg, and Dr. Hugh C. McPhee of the Bureau of Animal Industry, conferred with representatives of a fur-auction company in New York City, on March 27, to establish values on the red-, cross-, and silver-fox pelts produced at the United States Fur Animal Experiment Station. The cross-fox pelts were of exceptional quality, and there were a number of outstanding silver-fox pelts. The breeding operations and the genetical interpretations as represented in the fox pelts were discussed with Dr. McPhee. His services were solicited in connection with planning comprehensive breeding experiments for next year.

Talks on Furs to College Women.--On April 15, at the United States National Museum, Mr. Ashbrook gave an illustrated talk to the students of the textiles and clothing division of the University of Maryland on the more important fur animals of North America. These women were primarily interested in the uses made of the various

furs and in their wearing qualities. After the lecture many asked questions regarding various branches of the fur trade.

Whelping Season at Fur-Animal Station.--Dr. Hanson reports that 48 silver- and cross-fox pups have been whelped so far this season at the Fur Animal Station. The fox pups are too young as yet to be carefully examined, but Dr. Hanson believes that they are of good quality and are developing nicely.

Appointed Director of Rabbit Station.--George Streater Templeton, of Dallas, Tex., has been appointed Director of the United States Rabbit Experiment Station Fontana, Calif. The appointment becomes effective on May 1, when Mr. Templeton will report to Washington to familiarize himself with the work of the Division and the Bureau before proceeding to Fontana to take charge of the station. A graduate of the University of Missouri with the degree B.S. in Agriculture, Mr. Templeton was an instructor and assistant professor of animal husbandry at the Agricultural and Mechanical College of Texas from 1911 to 1913. From then until 1920 he was the head of the animal-husbandry department at the Alabama Polytechnic Institute and Experiment Station. For the three following years Mr. Templeton was again at Texas Agricultural and Mechanical College, as head of the animal husbandry department, and from 1923 to 1929 he headed this department at the Mississippi Agricultural and Mechanical College and Experiment Station and was assistant director of the station. He was later assistant director of the educational service of the National Cottonseed Products Association. In 1928 he was president of the Southern Cattle Breeders' Association. He is the author of four bulletins on animal husbandry published by Alabama and of four published by Mississippi.

Study Drainage in Relation to Muskrats.--Effects of drainage and controlled flooding on the food and the natural habitat of muskrats are being studied by the Biological Survey and authorities of the Mosquito Control Commission of Delaware to obtain information as a basis for more extensive mosquito control in muskrat territory. Several areas have been set aside on which the muskrat population will be determined with and without drainage and flooding. Records are to be kept of water levels throughout the seasons, and surveys are being made of topography and vegetation. Similar work is being undertaken at the fur station on the Blackwater Migratory Bird Refuge, Cambridge, Md., to serve as a check on findings in Delaware.

DISEASE INVESTIGATIONS

Tularemia Differs in Birds and Rabbits.--The work on infectious diseases in wild life being conducted cooperatively by the Biological Survey and the University of Minnesota has demonstrated that there is a distinct difference in the nature of the tularemia organism recovered from birds and that commonly found in rabbits. The period of incubation appears to be considerably longer in the bird strain, and in many instances the avian form does not produce the typical disease in test guinea pigs. It is therefore necessary to use some species of birds, such as quail, as test subjects in studying the disease in upland-game birds.

Horny Growths Appear on Rabbits.--Among the rabbits and hares collected in the North Central States for use in wild-life disease studies, a number have been found with horny growths, usually about the head. Laboratory tests indicate that

these are infectious, as similar growths are developing on laboratory test rabbits inoculated with scrapings from growths on native wild rabbits.

PREDATORY ANIMAL AND RODENT CONTROL

CWA Hunters Effective.--Leo K. Couch, leader of predatory-animal and rodent control in the State of Washington, reports that an average of 25 predatory-animal hunters, employed under authorization from the Civil Works Administration, accounted for a total of 1,169 predatory animals between December 1 and March 31. The sum of \$11,671 was spent for hunters' wages, and \$1,766.85 so far has been returned in the sale of furs. The CWA project has been a valuable aid to the regular predatory-animal control program in this State.

Control Work to be Continued Under State Administrations.--Upon discontinuance of the CWA program, three States decided to carry on predatory-animal and rodent control activities under the new State Emergency Relief Administrations. Rat control will be continued in Texas in 24 counties and prairie-dog control in 12 counties. Five other counties are submitting projects for continuing this work, and one county is carrying on pocket-gopher trapping operations. Thus rodent control started under CWA is being continued in 42 Texas counties. In Montana the employment of 50 men has been approved to continue the predatory-animal control project started under CWA. A control project approved in Wyoming will cost \$7,300, of which the local Emergency Relief Administration will supply \$4,000 and the State and the Biological Survey \$3,300 in materials and supervision. It is estimated that this project will furnish employment for 40 men for a total of 3,840 hours.

Predator Control Popular in Texas.--The Commissioner's Court of Webb County, Tex., recently voted to supply half the cost of four trappers to work for six months in that county under the supervision of the Biological Survey. This action followed the presentation of a petition to the county commissioners signed by a large majority of the landowners. Webb County is still primarily a cattle-raising section, and though no organized predatory-animal control under Bureau supervision was attempted there until about four years ago, the present popularity of this project speaks well for the effectiveness of the Bureau's organization in the State. Since the cooperative work was undertaken on September 1, 1931, 12,920 coyotes, 2,567 bobcats, and 66 mountain lions have been taken from this one county. The chairman of the Game, Fish, and Oyster Commission has stated that this large catch of predators has not only resulted in a saving to the livestock interests but has also been responsible for a notable increase in the number of deer. He stated that four years ago he rarely saw fawns during the hunting season, but with the gradual decrease in the number of predators, fawns were much more in evidence, until last fall it was noticeable that almost every doe he saw had one or two fawns with her.

Freight Rates on Rodent Baits May be Reduced.--A large western railroad system is requesting a reclassification of rates to apply on poisoned grains shipped for rodent-control purposes. Last year approximately 750,000 pounds of prepared baits were shipped from the Bureau's Bait Mixing Station at Pocatello, Idaho, to 25 States, about two thirds by railroad. Shipments will be considerably increased this year. Should the request be granted, car-lot rates will be reduced from third to fourth

grade. This will mean a saving of about 50 percent. Less than car-lot shipments will have a reduction in rates of approximately 30 percent.

To Control Prairie Dogs.--Plans have been made for a cooperative prairie-dog campaign on the Pawnee Indian Reservation, Okla. Bait has been shipped from Pocatello, and J. M. Jackson, of the Texas district, has been assigned as foreman under Leader A. E. Gray. The Bureau of Indian Affairs will supply labor and materials for Indian lands from ECW funds; adjacent landowners will pay for the treatment of their own lands. The project will cover about 46,000 infested acres.

Appointed to State Planning Council.--Leader Leo K. Couch was recently appointed a member of the Washington State Planning Council on Natural Resources. Mr. Couch has long taken an active interest in wild-life affairs and is versed in related problems in the State of Washington.

Imprisoned for Stealing Ray Furs.--Charged with taking skins of 10 coyotes and 1 bobcat from the camp of Hunter Ward Skiff, of Gypsum, Colo., on March 9, a defendant brought to trial on March 12 pled guilty to grand larceny. He was sentenced to the Colorado State penitentiary for not less than one year nor more than three. The stolen furs were returned to the hunter.

Assists Racing Commission to Detect Doped Horses.--Dr. James C. Munch, consulting pharmacologist of the Bureau, recently helped the Maryland Racing Commission install a bioassay for the detection of dope in the saliva of race horses, it having been alleged that many horses have been given dope just prior to a race.

LAND ACQUISITION

Return to Washington Headquarters.--Arthur A. Riemer has returned to the Washington headquarters after inspecting CCC work at the Swanquarter Migratory Bird Refuge, N.C., and PWA work at the Savannah River Wild Life Refuge, S.C. Daniel H. Janzen has returned from Manila, Ark., where he was engaged in preliminary work incident to the acquisition of land at the Big Lake Bird Refuge. Harold W. Hicks has returned from Winona, Minn., and Canton, Mo., where he surveyed areas to determine their value as migratory-bird refuges.

Detailed to Field Offices.--Kenneth C. Kern has been detailed to Fulton, Ill., to have charge of PWA surveying work on the Upper Mississippi River Wild Life and Fish Refuge in that State. Bert J. G. Tousey has left for Hot Springs, S.Dak., in connection with surveying work preliminary to constructing a dam at the Wind Cave National Game Preserve, which also will be done with PWA funds.

CWA Map Compilation Terminated.--The CWA map-compilation project, which has been in operation in this Division since January 15, 1934, was terminated on April 28 by order of the Civil Works Administration. The workers prepared refuge maps, assembled data for other maps, and improved the system used for filing and recording maps, notes, and similar material. Much work remains to be done, but the more urgent part was completed.

GAME AND BIRD CONSERVATION

Campaign Against Spring Shooting.--An intensive campaign against violations of the spring shooting regulation was inaugurated March 24 in several parts of the country to afford all possible protection to birds, particularly waterfowl, on their northward migration. Eleven United States game protectors and approximately fifty United States deputy game wardens are participating in this work, which is being carried on principally along the Missouri, Mississippi, and Ohio Rivers; in western Washington, Oregon, and New Jersey; and in the Lake Erie marshes in Ohio and Michigan. A large number of violators have been apprehended in the Missouri and upper Mississippi Valleys. While a few cases have already been disposed of in State courts, the majority of the offenders will be reported for prosecution in Federal courts.

CWA Refuge Projects Terminated.--April 27 marked the end of the CWA improvement work on wild-life refuges administered by the Biological Survey. Projects had been carried on at the Blackwater Migratory Bird Refuge, Md.; the Savannah River Wild Life Refuge, S.C.; the North Platte Bird Refuge, Nebr.; and the Sullys Hill Game Preserve, N.Dak.

Wardens Shoot in Self Defense.--On April 17 two United States deputy game wardens assigned to duty in Illinois shot, in self defense, an alleged game-law violator. The injured man, though shot through the stomach and liver, is now reported as resting comfortably, with an even chance for recovery. The officers discovered two men in the act of hunting, with ducks in their possession. Reports indicate that when placed under arrest, one of the men pointed his gun at the officers and threatened to kill, whereupon the officers fired. The deputies are now at liberty, and arrangements have been made for the U.S. Attorney at Chicago to defend them in any prosecution that may result.

Returns to Headquarters.--F. L. Earnshaw returned to Washington on April 16, after inspecting the Crescent Lake Migratory Bird Refuge and the Niobrara Game Preserve in Nebraska.

Unusual Animals Appear at Bison Range.--During 1933 some unusual forms of wild life made their appearance at the National Bison Range, Mont., says Dr. Robert S. Norton, the protector in charge. A white buffalo was born, a Chinese pheasant hen with a "pure-green" head was discovered, and a large mule deer well equipped with antlers turned out to be a female.

Rattlesnakes Numerous at Bison Range.--Rattlesnakes are reported to be numerous this year on the National Bison Range. A horse was bitten recently, but as prompt aid was given the animal it is expected to recover.

Bison Census Taken.--According to the report of the twentieth census of American bison, compiled by the secretary of the American Bison Society and issued on January 1, the total number of these animals in the United States is 4,404, and the total number of pure-blood American bison throughout the world is 21,701. The report states that many owners of private herds, zoos, and parks throughout the United

States have not furnished information on the number of animals in their herds, and that a fair estimate of the number of buffalo in such herds would probably have increased the world's total by two or three hundred.

Canada Geese Nesting at Lake Malheur.--Protector George M. Benson, of Lake Malheur Bird Refuge, Oreg., reports that Canada geese are nesting everywhere in the locality, even in haystacks and old tule beds. One was found near a fence that was being repaired, and another in an abandoned nest up in a willow tree. The nesting season appears to be much earlier this year. Scarcity of water in the entire Harney County basin threatens a great decrease in the number of goslings reared this year. The lake bed is dry, and the only salvation for the young goslings, says Mr. Benson, is the flooded area on two nearby ranches.

Observe Flight of Cranes.--Mr. Benson says that about 400 cranes were seen one day in the latter part of March flying in formation over Burns, Oreg. Several observers pronounced it their most wonderful sight of birds in the air.

Detailed to Washington Office.--H. Harrison Hoyt, protector at Wind Cave Game Preserve, S.Dak., arrived in Washington March 31. He has been detailed for several months to assist in the work of the reservations section. James L. Lynam will be in charge of the Wind Cave Preserve during Mr. Hoyt's absence.

Winter at Blackwater Refuge Coldest in Many Years.--Peter J. Van Huizen, in charge of the Blackwater Migratory Bird Refuge, Md., reports that the winter just past is said to have been the coldest in that locality in 118 years.

Not Necessary to Feed Elk at Refuge.--Because of the mild weather in Jackson Hole, Wyo., and vicinity, it was not necessary this year to feed hay to the elk wintering on the Elk Refuge. It was the fourth such winter since 1912. Approximately 4,500 elk wintered this year on the refuge and adjoining ranches, and Protector Almer P. Nelson found only six dead on the area. Practically all the elk had left the valley at the end of March and were then slowly moving north toward their summer range.

Fire at Blackwater Refuge.--During the afternoon of March 30 a fire that started on a marsh a short distance to the east of the Blackwater Migratory Bird Refuge, Md., spread rapidly and entered the refuge aided by the excessive amount of dry grass and the drift from the storm of August 1933. Discovered about 4 p.m., the fire was under control 3 hours later.

Prolonged Fire Hazard on Upper Mississippi River Refuge.--The most prolonged and continuous fire hazard that has existed on the Upper Mississippi River Wild Life and Fish Refuge since its establishment occurred between February 1 and March 30, reports Ray C. Steele, superintendent. With the water in the river, sloughs, and lakes at an exceedingly low stage, and with an almost total absence of snow, the dead vegetation was unusually dry. The northern part of the refuge appeared to suffer most from fires, and rangers in that section as well as members of the staff of the Winona office maintained a constant vigil day and night. Between February 1 and March 30, 30 fires were reported on the refuge, the burned area aggregating approximately 5,600 acres. The largest single fire turned over about 1,050 acres. Con-

siderable numbers of pheasants, quail, and other upland birds find cover in the refuge during winter and are also attracted by feeding stations. Winter fires are thus very destructive and, when freezing temperatures prevail, the fires tax to the limit the equipment and man power available for control.

Floods on Upper Mississippi River Refuge.--On March 30 and 31 there occurred in the region of the Upper Mississippi River Refuge a 20-inch fall of snow. This was considerably more than had fallen previously in that section during the entire winter, and it melted rapidly and was followed by heavy rains. The river rose at the most rapid rate known in several years, disastrous floods occurring along the tributaries in western Wisconsin and Minnesota. At Winona, from a stage of -0.7 on April 2 the river rose to +8.7 on April 7, the water rising 4 1/2 feet in one day, the most rapid rise known in many years. At several points the cofferdams in the 9-foot-channel construction work now in progress were flooded and operations brought to a standstill.

Waterfowl Conditions on Refuge.--By April 1 considerable numbers of waterfowl were present throughout the entire Upper Mississippi River Refuge, and during the week of April 1 to 7 the peak of the migration occurred. The numbers of birds using the Upper Mississippi flyway this spring appeared, according to all reports, to compare rather favorably with the migrations of the springs of 1933 and 1932. The predominating species this year were mallards, pintails, and scaups, in the order named. Additional patrolmen were placed on temporary duty and every effort was made to safeguard the birds while they were passing through the refuge area.

Game-Law Violations on Upper Mississippi.--Eight game-law-violation cases, involving illegal hunting and trapping, on the Upper Mississippi River Refuge were reported during March. Two defendants found trapping in Vernon County, Wis., were held for trial in Federal court following examination before the United States commissioner at La Crosse. Bail for each was fixed at \$300. Another defendant charged with trapping in Winona County, Minn., was arraigned before the United States commissioner at Winona, and upon failure to furnish the \$100 bail required, was committed to jail to await the June term of Federal court. Two cases involving illegal trapping and one involving fox hunting are pending prosecution in Federal court. Of the remaining two cases, one involving illegal trapping in Crawford County, Wis., was terminated in State court with a fine of \$50 and costs of \$3, and the other, also involving trapping, is awaiting disposition in State court.

Quail Imported from Mexico.--During the last two weeks in March, 12,551 quail were imported from Mexico, making the total number entered during the month 13,611. Of these, 4,310 were entered at Laredo, Tex., and 9,301 at Eagle Pass, Tex. Several shipments of the birds went to various points in Texas and Tennessee, but according to reports from the inspectors at the border a considerable number of the quail have not yet been sold or shipped out of Texas but are being held by the importers for prospective future sales. The inspector in charge reports that the Mexican Government stopped the exportation of quail from Mexico on March 31.

Shipments of Rhesus Monkeys Arrive.--Several large shipments of rhesus monkeys, comprising approximately 2,000 animals, were imported from Calcutta, India, during the month. Two shipments of 400 monkeys each were entered at New York City, and one of 500 at Boston.

THE SURVEY

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Vcl. 15

Washington, D.C., May 1934

No. 5

EDWARD WILLIAM NELSON

Dr. Edward William Nelson, Chief of the Biological Survey from 1916 to 1927, died at Garfield Hospital, Washington, D.C., on May 19, at the age of 79. The immediate cause of death was a heart ailment from which he had suffered for several years. Dr. Nelson had gone to the hospital only two days before, from his residence at the Cosmos Club, where up to the last he was actively interested, through correspondence and writings, in the work of the Biological Survey.

Funeral services, which were conducted on May 22 at the Gawler Chapel by the Rev. Arlington McCallum, of St. Paul's Episcopal Church, Washington, D.C., were attended by friends and members and former members of the Biological Survey and other scientific institutions. Cremation followed these services, the place of depositing the ashes to be selected later.

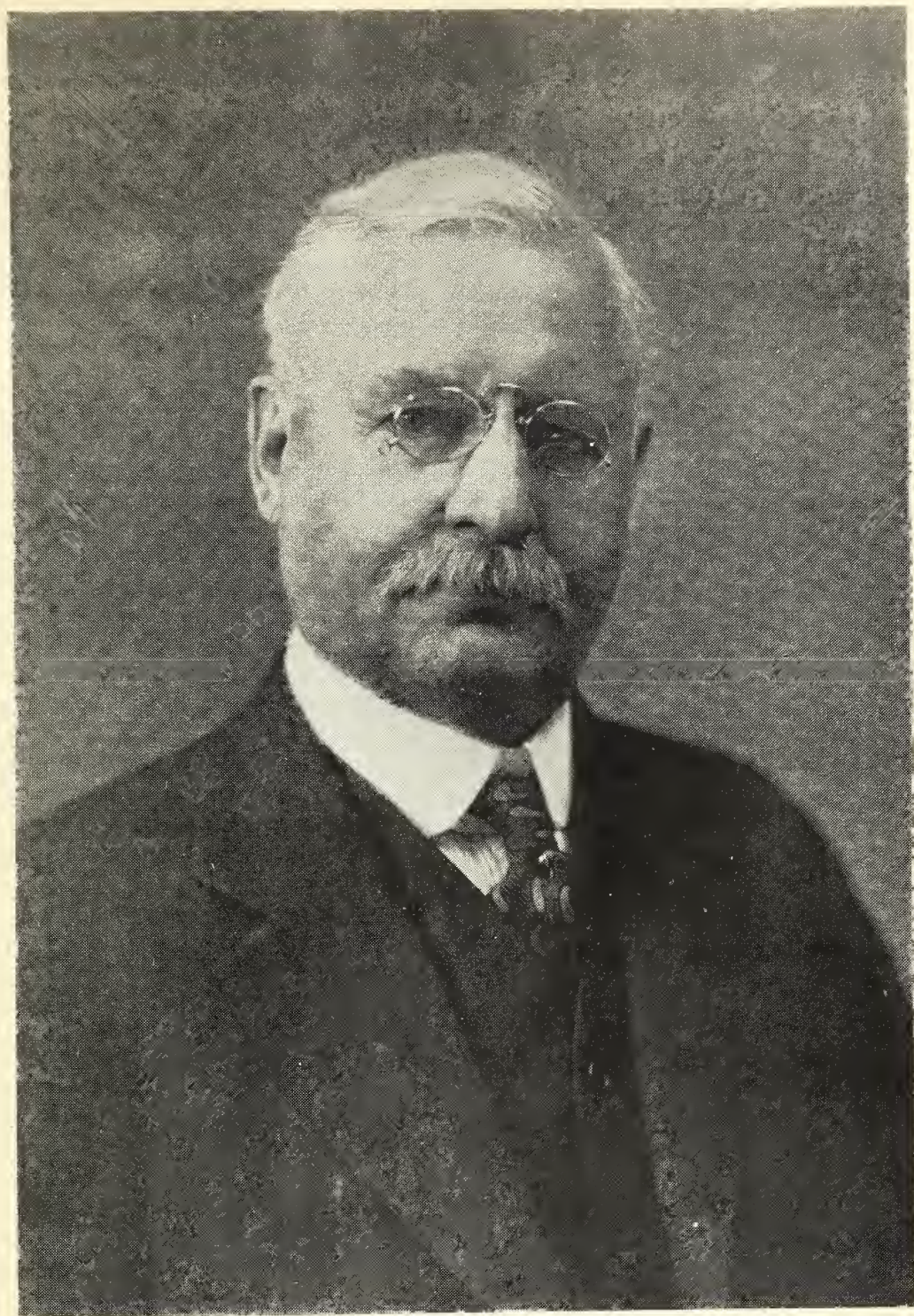
A memorial meeting was held in the National Museum on May 23. Dr. Alexander Wetmore, assistant secretary of the Smithsonian Institution, who had served in the Biological Survey when Dr. Nelson was Assistant Chief and Chief, acted as chairman. Calling attention to the fact that Dr. Nelson's first and last work was connected with the Smithsonian Institution, he sketched his early training and accomplishments and called him the last of the school of naturalists trained by Spencer Fullerton Baird. Mr. Henderson, who represented the Biological Survey because of his intimate and lengthy associations with Dr. Nelson, described the former Chief as a man apparently brusque in manner but essentially friendly and kindly and of great patience and simplicity. Courage, said Mr. Henderson, was his most appealing characteristic, shown not only in fearlessness but outstandingly in struggles against ill health. Mr. Henderson concluded by stressing Dr. Nelson's devotion to the gathering and increase of knowledge. Every day for more than 60 years, he stated, Dr. Nelson sacrificed his life to this cause. "In his death," he said, "we have lost a friend, and the world a man." Senator F. C. Walcott, of Connecticut, chairman of the Senate Wild-Life Committee, said that Dr. Nelson was a great man and that he had made a profound impression upon his life. Thoroughness and devotion to duty were qualities emphasized by the Senator. Dr. T. S. Palmer, who, as he said, served with Dr. Nelson, over him, and under him, presented an appreciative reminiscence. In some detail he sketched Dr. Nelson's biography and outstanding accomplishments. Paul G. Redington recounted experiences during his early acquaintance in California, and expressed personal appreciation of the advice and co-operation received after he succeeded Dr. Nelson as Chief of the Bureau. This help, he said, "I shall remember as long as I live." Carl J. Lomen, who has long been interested in the development of the reindeer industry in Alaska, recounted incidents of associations with Dr. Nelson and praised his contribution to the improvement of the reindeer herds. Mrs. Ned Hollister, of the Smithsonian Institution, spoke briefly of Dr. Nelson and his home life with his mother. Dr. Neil M. Judd, of the National Museum's Division of Archeology; Dr. A. S. Hitchcock, of the Division of Botany, of the Bureau of Plant Industry; and Dr. Paul Bartsch, of the Museum's Division of Mollusks, told of Dr. Nelson's accomplishments as a collector. Had Dr. Nelson not been a biologist, said Dr. Judd, he might have been a leading archeologist. Speaking of Dr. Nelson's contribution to botany, Dr. Hitchcock said that anyone studying the Museum's collection of

Mexican plants without knowing who Dr. Nelson was would be led to believe that he was primarily a botanist. Dr. Bartsch also ascribed to him a high place among malacological collectors. The meeting was attended by Mr. Darling, other officials of the Department, members of the Smithsonian Institution, and others who had known Dr. Nelson.

In a press statement issued by the Department on May 19, Mr. Darling spoke of Dr. Nelson's career as one of great courage and vast accomplishment in a life-long struggle against ill health. "Dr. Nelson," he said, "was one of the outstanding naturalists of North America, and he was active in this work by correspondence and conference up to a few days before his death. During his eleven years of aggressive leadership as Chief of the Biological Survey, the Bureau developed from an organization chiefly concerned with research to an agency that has been generally recognized as an outstanding force for conservation. His administration of the Survey saw the expansion of the Bureau's work on bird conservation through administration of the Migratory Bird Treaty Act, and the development of cooperative work with the States in predatory-animal and rodent control, including the building up of a trained field organization. During this period also the Biological Survey initiated its studies of the habits and distribution of birds through the bird-banding method, and the effective development of the movement in favor of bird refuges culminated just before his retirement from the Bureau in the passage of the Migratory Bird Conservation Act. In fact it was Dr. Nelson who originated the movement that reacted finally in the passage of this bird-refuge act and in the enactment this year of the Migratory Bird Hunting Stamp Act. Dr. Nelson was instrumental also in the negotiation of the treaty with Great Britain protecting birds that migrate to and from Canada, in the enactment of the Alaska Game Law of 1925, which established the present Alaska Game Commission, and in establishing the Bureau's work for the improvement of the reindeer herds in Alaska. His broad interests in wild-life conservation and his indomitable courage in the face of physical handicaps have been an inspiration to his associates in the Government and to hosts of officials and members of scientific and conservation organizations that should long continue."

Dr. Nelson had been associated with the work of the Department of Agriculture since 1890. Before he became Chief of the Biological Survey, he spent more than 20 years as a scientific explorer in different parts of the continent from the Arctic to the Tropics. From the collection of birds and mammals obtained at this time he and others have described hundreds of species previously unknown to science. As a part of his Arctic experiences he was a member of the "Jeannette" search expedition in 1881 and was with the first party to land on Wrangell Island. His work on the customs and history of the Eskimos, made as a result of his study of these people while in Alaska in the 70's, is still an authoritative publication. In Mexico his travels during 14 years extended into every State and Territory of that country and resulted in securing large collections of specimens of mammals, birds, reptiles, and plants and in the accumulation of a vast amount of data, on the publication of which he had been working during the past few years. His published work includes monographs on mammals and birds and descriptions of many new species. He was also the author of popular books and articles dealing with various phases of wild life and wild-life conservation. In connection with one of Dr. Nelson's books on the Wild Animals of North America, Theodore Roosevelt once said that the author was "one of the keenest naturalists we have ever had and a man of singularly balanced development."

Dr. Nelson remained in the Biological Survey, following his relinquishment of administrative duties for two years, until his retirement at 74 years of age on May 8,



EDWARD WILLIAM NELSON
THIRD CHIEF, BUREAU OF BIOLOGICAL SURVEY
DECEMBER 1, 1916, TO MAY 8, 1927
DIED MAY 19, 1934, IN HIS 80TH YEAR

1929. He was third Chief of the Biological Survey, his predecessors (1885 to 1916) being Dr. C. Hart Merriam and Henry W. Henshaw. He was succeeded by Paul G. Redington (1927-1934) and by Mr. Darling.

Dr. Nelson was born at Manchester, N.H., on May 8, 1855, and spent his boyhood on his grandfather's farm in New York State, and in Chicago, Ill. He was graduated from the Cook County Normal School, Chicago, in 1875, and held the honorary degrees of A.M. (Yale) and Sc.D. (George Washington University). He was unmarried. He had been president of the American Ornithologists' Union, the American Society of Mammalogists, and the Biological Society of Washington, and was a member of numerous scientific and conservation organizations. His name is perpetuated in his many writings and in the names of one genus of mammal, one genus of plant, and more than 100 species and subspecies of animals (including birds) and plants, as well as by the Nelson Range of Mountains in California, Nelson Lagoon in Alaska, and Nelson Island at the mouth of the Yukon River.

GENERAL NOTES

Restoration Program Getting Under Way.--Federal funds have been promised for an immediate beginning in the new Federal program of waterfowl restoration, Mr. Darling told the National Farm and Home Hour audience during the weekly conservation program on May 25. The Bureau's surveyors and experts on food and water conditions are already in the field, and it is hoped that the work of building dams, stopping up old drainage ditches, fencing, and planting aquatic foods, will be under way by fall, providing at the same time work for the unemployed. In speaking of the prospects for the hunting season next fall, Mr. Darling said that a full staff of investigators cooperating with the Canadian game authorities are observing conditions on the northern nesting grounds now. Their reports will furnish facts on which to base shooting regulations for the coming fall season. No effort, said Mr. Darling in conclusion, is being spared to give the true sportsman as much liberty as the traffic will bear without endangering the further depletion of the migratory waterfowl while the national program of restoration is getting under way.

Wild Life Demonstration Area at Beltsville Approved.--Dr. Rexford G. Tugwell, Assistant Secretary of Agriculture, on May 18, approved the allocation of an 800-acre tract in the Beltsville Experiment Station area for use of the Biological Survey to develop wild-life resources and demonstrate management practices. The tract embraces part of Beaverdam Creek including its several tributaries, an area selected after Bureau representatives had studied 5,000 acres of land in the Beltsville area. A committee has been appointed to lay plans for improving the area's attractiveness to wild life. Topographic and soil-cover surveys have been made, and the Bureau of Chemistry and Soils has completed a soil survey of this part of the Beltsville area and furnished the Biological Survey with maps and data pertaining to the various soil types. The planting of seeds and shrubs that will furnish food for game birds is already under way. Two locations in the area have been selected for the impoundment of water, each comprising approximately 18 acres. Plans for the construction of dams have been completed and are now being considered with the Bureau of Agricultural Engineering and the local landscaping authorities. The impounding of water will form a small lake that will furnish habitat for muskrats, beavers, and migratory waterfowl. In honor to Dr. E. W. Nelson, it has been proposed that Nelson Lake be the official title of this small body of water, around which is now being planted willows to furnish food for

the beavers. Plans for a central laboratory on a headquarters site are being made, and all divisions of the Bureau will be furnished adequate space in which to carry on research work in their various fields. This laboratory will be modern in every detail and will include rooms in which birds and animals can be kept for observation. This project contemplates other improvements that will facilitate practical demonstrations in the restoration, production, and conservation of wild life indigenous to this region. Units for the propagation of upland game birds and the production of fur animals in captivity also will be established.

Attend Mammalogists Meeting.--Mr. Darling, Mr. Henderson, four other members, and two retired members of the Biological Survey attended the sixteenth annual stated meeting of the American Society of Mammalogists, held at the American Museum of Natural History, New York City, May 8 to 12. Vernon Bailey, president of the Society, spoke on "Better Traps and Better Trapping," using slides and demonstrating traps, and also on "Home Life of the Beaver", showing in connection with his talk the Bureau's motion picture "Beavers at Home." Dr. H. H. T. Jackson discussed "A Method of Preserving Large Teeth", exhibiting specimens; and A. H. Howell presented "Notes on the Range of the Florida Water-rat", illustrated with slides. A paper prepared by C. C. Sperry entitled "Winter Food Habits of Coyotes; a Report of Progress, 1933" was read in the absence of the author by Mr. Henderson. Dr. T. S. Palmer, Mrs. Viola S. Snyder, and Mrs. Jane S. Elliott were also in attendance at the meeting. The society reelected its officers, including Mr. Bailey, president; Dr. Palmer, a vice-president; Mrs. Snyder, treasurer; E. A. Preble, chairman of the editorial board; and Dr. Jackson, a member of the board of directors.

Calls for Coordinated Effort in Wild-life Management and Forestry.--Wild life should have a very definite and important consideration in the vast program of reconstruction that is now being planned and projected by the States and the Nation, said Mr. Henderson in an address delivered on May 29 at the Central States Forestry Congress in Knoxville, Tenn. Declaring that man has done almost irreparable damage to wild life in his indiscriminate, unguided, and unplanned exploitation of natural resources in this country, Mr. Henderson called for a coordinated effort in wild-life management and forestry. The few extra measures it is desirable to take to encourage wild life in forests are simple and inexpensive, he said, and most of the recognized forestry principles are as favorable for wild life as they are to the forests. Fur and game species, he further pointed out, may be treated as a crop, and revenue may thus be derived from the disposal of shooting rights or otherwise during the period when trees are growing but none are being sold. To be well coordinated a plan of wild-life management, Mr. Henderson explained, must be developed by experts in the several fields. Emphasizing that biological investigations must provide the basis for all practical management plans, he declared that every major forest unit and every similar combination of smaller units of forested land should be assigned to a biologist, who would plan the wild-life management on the area. "We cannot," he said, "have ideal forestry conditions at the expense of the forest wild life, and there can be no satisfactory solution of forest-fauna problems at the expense of the forest."

Official Publication has been received as follows:

The United States Department of Agriculture--its structure and functions, by M. S. Eisenhower, Director, and A. P. Chew, Assistant to the Director, Office of Information. Miscellaneous Publication No. 88, Rev., 177 pp. (Bureau of Biological Survey, pp. 66-74, with chart.) December 15, 1933. Received May 15, 1934.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Gabrielson, I. N. The fire-born Cascades. House and Garden 65 (5): 66-67, 92-94. May 1934.

----- Baby styles in bird land Amer. Forests 40 (5): 209-211, 238-240, illus. May 1934.

Keyes, Joseph. Porcupine control on forests of California. Calif. Fish and Game 20 (2): 148-150, illus. April 1934.

Lincoln, F. C. To bird-banding coöperators in the Eastern Region. East. Bird Banding Quart. 1 (1): 3. May 1934.

Murie, O. J. Tundra mothers. Amer. Forests 40 (3): 110-111, 143, 144. March 1934.

Nelson, E. W., and Goldman, E. A. Pocket gophers of the genus Thomomys of Mexican mainland and bordering territory. Jour. Mammal. 15 (2): 105-124. May 1934.

Redington, P. G. The future job of the U.S. Biological Survey. Minn. Conservationist, No. 10: 8, 20-22, illus. March 1934.

Roahen, K. F. U. S. game protector cites necessity of creating refuges for waterfowl. Billings (Mont.) Gazette 46 (183): 1, 6 (second section). May 6, 1934. Also, Great Falls (Mont.) Tribune, May 7, 1934, p. 10.

ADMINISTRATION

Appointed.-----James L. Talbert, senior clerk, was transferred, effective May 15, to the Biological Survey from the Bureau of Entomology to assist in preparing bids and in related work under emergency appropriations. Mr. Talbert has been employed in the Department since 1920.

Samuel B. Hubbard was appointed on May 5, by reinstatement, junior clerk in the Bookkeeping Section to assist with the increased work under emergency funds. His previous experience includes employment as clerk in the Department of War, bookkeeper in the Department of the Treasury, and adjudicator in the Veterans' Administration. Recently Mr. Hubbard served as chief clerk at Atlanta, Ga., in the Bureau's cooperative antirat campaign in connection with typhus-fever control.

Mrs. Sarah E. Hill, senior typist, was transferred on May 7 from the Office of Personnel and Business Administration of the Department to the Auditing Section, where the work has greatly increased because of emergency appropriations. Mrs. Hill's previous Government service includes several years' employment as clerk-typist in the Department of the Treasury.

Miss Flora D. Orkin was appointed junior clerk-stenographer in the Division of Administration, effective May 16, to aid in work under NIRA and other emergency activities. Miss Orkin has been previously employed in the Bureau of Internal Revenue, Department of the Treasury; in the Division of Railway Mail Service, Post Office Department; and in the Bureau of the Census, Department of Commerce. Prior to her departmental service, Miss Orkin was employed in Cleveland, Ohio, by the Board of Education.

Thomas J. Kelley, who was employed by the Bureau on February 6 as messenger under NIRA, has been appointed to fill the vacancy in the messenger service caused by the recent transfer of Herman Walter Lanham to the Secretary's file room.

BIOLOGICAL INVESTIGATIONS

Investigate Waterfowl Conditions on Breeding Grounds.--Luther J. Goldman, after completing his studies of waterfowl conditions in California, Idaho, Montana, North Dakota, and parts of the Prairie Provinces of Canada, joined E. A. Preble on May 14 at Edmonton, Alberta, for an investigation of Waterfowl conditions on the important breeding grounds in the Lake Athabaska region. A telegram received by the Bureau on May 21 stated that Mr. Goldman and Mr. Preble had left Waterways, Alberta, and were proceeding to Fort Chipewyan. At Edmonton, they had conferred with United States Game Protector W. H. Ransom, of Spokane, Wash., who has been detailed to carry on waterfowl studies in Alberta and western Saskatchewan, and with executive members of the Northern Alberta Game and Fish Protective League. Mr. Ransom during part of his investigation will be accompanied by J. A. Munro, of the Canadian Department of the Interior, district chief Federal migratory bird officer for the Western Provinces.

C. M. Aldous, who has recently been engaged in a check-up of waterfowl conditions in Minnesota, South Dakota, and southern North Dakota, is planning to undertake with E. A. Goldman a study of waterfowl breeding conditions in Manitoba and eastern Saskatchewan. Mr. Goldman left Washington on May 7 for this purpose and following a brief trip to California joined Mr. Aldous at St. Paul, Minn., but was recalled to Washington, D.C., by the death of Dr. Nelson. With Mr. Aldous he will carry on the investigation as planned, having again left Washington on May 25 for the purpose.

Studies Elk on Olympic National Forest.--O. J. Murie, who is studying the elk situation on the Olympic National Forest in Washington, reports good progress in obtaining information that will be useful in making plans for intelligent management of this interesting and valuable herd.

FOOD HABITS RESEARCH

Observing Waterfowl Food Conditions.--Mr. McAtee left Washington, D.C., on May 9, to study food conditions of migratory waterfowl on bird refuges and other areas in Texas and in the Pacific States. He planned also to visit field stations and collaborators of the Division.

Studies Relation of Crows to Nesting Waterfowl.--E. R. Kalmbach and C. C. Sperry left Denver on May 14 to observe the depredations of crows on nesting waterfowl, Mr. Kalmbach in Saskatchewan and Alberta, Canada, and Mr. Sperry in North and South Dakota.

Notes Waterfowl-Food Conditions at Chinsegut Hill.--From April 29 to May 6 Neil Hotchkiss was at the Chinsegut Hill Migratory Bird Refuge, Fla., observing waterfowl-food conditions and outlining methods for improvement.

Control Problem on Game Preserve Studied.--A. L. Nelson, with James Silver and F. E. Garlough, of the Division of Predatory Animal and Rodent Control, on May 3 in-

vestigated an unusual meadow mouse-hawk problem on a game preserve near Trevilians, Va. Plans were made for a further study of the rodent infestation and of the food habits of hawks on the area.

Investigates Reported Gull Depredations.--J. Paul Miller, on May 5, investigated reports of gull depredations at South Burlington, Vt., where it was said that gulls were feeding on garbage and other materials intended for hogs. Mr. Miller reported that little damage was being done.

Grasshopper Poison Properly Placed No Menace to Birds.--Grasshopper poisoning, now in progress in the Northern Plains States, following a Congressional appropriation for the purpose, can cause little or no injury to bird life, if properly carried on, said Clarence Cottam in a press statement issued on May 17 by the Department in response to a large number of inquiries as to the campaign's possible effects on birds. During a two-weeks' investigation at the height of the poisoning campaign of 1931 in the north-central prairie region, Mr. Cottam found no evidence of birds being poisoned where the arsenic bait was prepared and scattered broadcast, as recommended by the Bureau of Entomology. Bird fatalities, he found, were confined to isolated cases in places where the recommendations had been disregarded and the grasshopper bait left in piles.

FUR RESOURCES

Discusses Prime Pelt Standards.--At a meeting of the Technical Association of the Fur Industry, New York, N.Y., on April 23, Mr. Ashbrook spoke on Conservation and the Molt Cycle. He discussed the effect of the molt cycle on the primeness of pelts. In answer to a query following his talk, Mr. Ashbrook said that it was his opinion that furs obtained from animals raised on fur farms would not for some time replace those from animals taken in the wild, and that the quantity of ranched furs marketed is now only a "drop in the bucket" compared with that of wild furs.

Leave for Fontana.--George S. Templeton left Washington, D.C., on May 9, for the U.S. Rabbit Experiment Station, at Fontana, Calif., to take up his new duties as director of that station. Chas. E. Kellogg left on May 15 for Fontana, planning to visit also the Game, Fish, and Oyster Commission, in Dallas, Tex., and also a Karakul-sheep farm at Dundee, Tex.

Inspect Fertilizer Experiment.--On April 6, the farm advisor of San Bernardino County, Calif., the president and vice president of the Fontana Farms Co., and a member of the staff of the Riverside Citrus Experiment Station inspected the experimental fertilizer plots in the 5-acre orange grove in which the rabbit station is located. A 5-year experiment to compare the relative values of rabbit, sheep, cattle, and chicken manures has just been completed, and the consensus seemed to be that those plots fertilized with rabbit manure had produced the best and most uniform oranges.

Martens Born at Fur Animal Station.--Dr. Karl B. Hanson reports that a litter of two martens were born about the middle of April at the United States Fur Animal Station, Saratoga Springs, N.Y. This is the first litter of martens produced there from parents raised in captivity.

NIRA Projects Facilitate Work at Experiment Stations.--The feed-storage building at the U.S. Fur Animal Experiment Station, constructed with NIRA funds, has been completed. This makes available needed additional space for storing feed and furnishes a more desirable place in which to mix and weigh feed rations. Considerable progress has been made in building new pens in which foxes and other fur animals are housed and repairing the old ones. With NIRA funds, also, 6 all-metal developing and holding pens with a capacity for 50 weaned rabbits and 25 developing does have been completed at the U.S. Rabbit Experiment Station. These pens facilitate the feeding and handling of rabbits and require little labor to keep them clean and sanitary. Frank R. Smith of the fur-animal station at the Blackwater Migratory Bird Refuge, Md., conferred in the Washington office last week on construction work on the muskrat and mink units at the station.

Speak at Rabbit Breeders' Meeting.--At the meeting of the San Fernando and San Gabriel Rabbit Breeders' Associations, held in Van Nuys, Calif., on April 27, A. E. Suitor, of the U.S. Rabbit Experiment Station, discussed rabbit housing and feeding, and Dr. F. D. McKenney, cooperator of the Bureau at the University of Southern California, spoke on diseases of rabbits and their prevention.

DISEASE INVESTIGATIONS

In the Field.--Because of the serious illness of Dr. R. G. Green, Dr. Shillinger left on May 8 for Minneapolis, Minn., to supervise the disease-investigation projects being carried on cooperatively with the University of Minnesota. After spending a few days in Minneapolis, he left for various points in Montana where serious losses among sheep had led to calls on the Biological Survey for aid in controlling rodents, believed to be instrumental in spreading the disease. On his return trip to Washington, about the last of May, Dr. Shillinger planned to confer with collaborators in wild-life disease studies at the University of Michigan and Ohio State University. During Dr. Shillinger's absence Dr. L. C. Morley, of Richmond, Va., was in charge of the Washington office.

PREDATORY ANIMAL AND RODENT CONTROL

Visit the Middle West District.--On May 8, Mr. Young and James Silver, supervisor of the Eastern Region, left for Lansing, Mich., to confer with the Department of Conservation there regarding cooperative work in that State. From Lansing they proceeded to the Kellogg Wild Life Sanctuary, near Battle Creek, to discuss with the officials in charge problems relating to predatory-animal control in the sanctuary, and to Ann Arbor to confer with members of the faculty of the School of Forestry and Conservation, of the University of Michigan. While at Ann Arbor Mr. Young addressed a meeting of the Gamma Nu Chapter of the Sigma Nu Fraternity on the predatory-animal work of the Bureau. Mr. Young and Mr. Silver later visited G. C. Oderkirk, leader in the Illinois-Indiana-Wisconsin district, at Lafayette, Ind., to discuss the work of his district. They also made stops at Springfield, Ohio, to confer with factory officials there regarding the preparation of various red-squill products; at Columbus, Ohio, to discuss rodent-control work with P. M. Parke, State Extension Entomologist and cooperator of the Bureau in Ohio; and at Cincinnati to confer with the manufacturers of the Bureau's field uniforms.

In Washington.--F. E. Garlough, of the Control Methods Research Laboratory, Denver, Colo., was in Washington early in May conferring with officials. He discussed control methods with Dr. James C. Munch, consulting pharmacologist of the Bureau, and both Mr. Garlough and Dr. Munch attended the Washington meeting of the American Pharmaceutical Association. Later Mr. Garlough went to New York and vicinity to confer with strychnine manufacturers and then to New England to see E. M. Mills, leader of the New England-New York district, in regard to the preparation of red-squill baits.

ECW Control Work Under Way.--Rodent control on Indian lands, begun a few weeks ago with ECW help, is now in full operation on several reservations throughout the West. The ECW rodent-control program on national forests has been definitely approved and supplies are being purchased.

Bait Mixing Station on 24-Hour Schedule.--Paul T. Quick, in charge of the Bait-Mixing Station, at Pocatello, Idaho, reports that since the beginning of the rodent season, and especially since the inauguration of the ECW work on Indian lands, the station has been running 24 hours a day to fill orders on the regular Federal, cooperative, and emergency rodent-control programs throughout the Western States. He says that between April 24 and May 7, about 144,000 pounds of mixed bait and 135,000 pounds of steam-crushed oats were prepared and shipped for the ECW project.

LAND ACQUISITION

Bird Refuge Established in Railroad Valley, Nev.--An executive order issued on May 2 reserved and set aside public lands in Nye County, Nev., for waterfowl-refuge purposes and designated the area the Railroad Valley Migratory Bird Refuge. Years ago artesian wells were sunk in this desert valley in connection with an unsuccessful potash-development project. These wells have continued to flow and have created swampy areas and ponds--one of 50 acres and another of 30 acres--used by the birds as nesting resting, and feeding areas. About a thousand ducks were observed on these ponds in August 1933, mostly cinnamon teals and mallards but including many pintails. White-faced glossy ibises, avocets, and other water birds were present and a luxuriant growth of aquatic vegetation including tules and sedges was found. Additional wells and engineering operations for water control are being planned, and when thus developed it is expected that the area will be an important link in the chain of Federal bird refuges. Third in size among the Federal sanctuaries administered by the Bureau in the United States, the Railroad Valley refuge includes about 135,184 acres. It is approximately 18 miles long and 16 miles wide.

GAME AND BIRD CONSERVATION

Wardens Cleared in Shooting Case.--Following an investigation by the local State's attorney, the two deputy game wardens held at Ottawa, Ill., for shooting an alleged game-law violator, as told in the April SURVEY (p. 48), were released from custody on April 28, the State's attorney concluding that the shooting was in self defense. The wounded man has recovered. Mr. Sheldon, who was in Ottawa in connection with the investigation, returned to Washington on May 9.

Observes Waterfowl Conditions.--After leaving Ottawa, Mr. Sheldon observed migratory-waterfowl conditions along the Illinois River and in Missouri, Iowa, and southern Nebraska. He reports that waterfowl were abundant but were fast moving northward to the breeding areas, and that throughout the entire area there was a serious lack of water, the creeks, small streams, and ponds being almost invariably dry, and dust storms common.

Checks Fur Shipments.--F. P. Callaghan spent the period May 14 to 25 inspecting records of fur shipments. The work was carried on under provisions of the Lacey Act. Mr. Callaghan visited St. Paul and Minneapolis, Minn., in company with Federal Protector B. J. Shaver; and Milwaukee, Wis., and Chicago, Ill., with Protector Stephen Creech.

Water Supply Scarce at the Charles Sheldon Refuge.--Reports have been received that the antelope at the Charles Sheldon Wild Life Refuge, Nev., are using the range in normal numbers, although the springs have not made their usual seasonal rise and owing to the mild winter many "wet-weather" waterholes have failed to flow at all. The present water supply at the refuge, however, is said to be adequate. The forage is reported to be the best in a number of years, but much of it will go to seed as the water supply is so scant that stockmen are unable to leave the usual number of cattle on the area. The shortage of water on the range is sending both deer and antelope to the permanent waterholes somewhat earlier than usual.

Cottonwoods Planted at Niobrara.--About 8,000 cottonwood trees were recently planted at the Niobrara Game Preserve, Nebr.

Dust Storm at Sullys Hill Game Preserve.--Protector Wesley D. Parker relates that on April 22, with a strong wind blowing, there was so much dust in the air at Sullys Hill National Game Preserve, N.Dak., that at one time it was impossible to see more than 100 yards. Even in woods the trees were so covered with dust that they appeared gray, but the dust was much denser in the open. At some places along the road there were drifts of soil that had the appearance of snowdrifts.

Fewer Ducks Observed at Sullys Hill.--Protector Parker reports that the number of ducks observed at Sullys Hill during migration this spring was only about two-thirds of that seen last year, and that a shortage of food for ducks that feed in the water prevails. About the same number of geese were noted on their northward flight as last year.

Breeding Birds Increase at Clear Lake Refuge.--Protector Hugh M. Worcester reports that when he visited the pelican colony at Clear Lake Bird Refuge, Calif., on April 18, he counted 2,100 nests. From his observations of this colony and of the birds on three islands about half a mile distant and inhabited by gulls, terns, cormorants, and blue herons, he believes that more birds are nesting this year in that locality than have nested at any time since 1930, which was the first year he visited these colonies. A fence to protect the nesting birds from grazing stock is being constructed.

Fewer Waterfowl at the Elk Refuge.--Fewer waterfowl than in previous years are reported on the Elk Refuge, Wyo., and on the immediately adjoining Flat Creek Bird Refuge. Because of the light snowfall of the past winter, the water level in the streams is below normal and the water table in the Flat Creek Swamp in many places is below the surface. About the usual number of insectivorous and other nongame birds are present.

Early Breeding Record at Bear River Refuge.--A mallard hen with 10 or 12 young was observed at the Bear River Migratory Bird Refuge, Utah, on April 20. This seems to be a record for early hatching there. On April 2 about 3 inches of snow fell at the refuge, which was more than at any time during the past winter.

Inspect Trees on Refuge.--On April 27, George E. Mushbach, superintendent of the Bear River Refuge, accompanied two members of the forestry department of the Utah State Agricultural College over the refuge to inspect the trees the college furnished two years ago. College officials were pleased with the results of these plantings.

Speaks at Sportsmen's Meeting.--At a meeting of the Cache Valley Sportsmen's Association, at Logan, Utah, on May 4, Mr. Mushbach spoke on the value of refuges and the desirability of maintaining sanctuaries and nesting grounds for waterfowl, and a member of the State game department showed motion pictures of the Bear River Refuge and of Utah big game.

Attends Sportsmen's Celebration.--Mr. Mushbach, on April 21, discussed game matters with sportsmen at a mass meeting in Ogden, Utah, that concluded the annual parade and jollification of the Weber County Fish and Game Association. The parade, a mile and a half long, was participated in by municipal organizations and State sportsmen's associations.

Indian Workers Capture and Transplant Game.--CWA workers in Alaska recently accomplished an unusual feat in transplanting 596 game and fur-bearing animals to portions of the Territory where their numbers have been depleted. Most of the workmen employed were native Indians, Aleuts, Eskimos, or halfbreeds, and with one exception the foremen were unemployed registered guides. The men captured alive and unhurt 39 deer and 22 martens in southeastern Alaska and 856 snowshoe rabbits, or varying hares, in the interior. Of the 596 animals successfully transplanted, 558 were snowshoe hares released on Kodiak Island, where an eruption of Mount Katmai in 1912 had practically exterminated all game animals except bears. Nine deer also were liberated on Kodiak and 12 on small islands in Yakutat Bay. Ten martens were placed on Prince of Wales Island and seven on Baranof Island. These valuable fur bearers are expected to aid materially in providing the natives with a livelihood in the future. The projects, authorized by the Civil Works Administration, were directed by the Alaska Game Commission, and were carried on with funds provided through the Governor of Alaska by the Federal Emergency Relief Administration.

Drought Threatens Wild Life on Upper Mississippi Refuge.--Drought conditions during April and May again reduced water levels at the Upper Mississippi River Wild Life and Fish Refuge, and high temperatures were recorded day after day, clouds only oc-

asionally drawing a curtain of shade over the parched area--at a season when abundant rainfall usually is soaking the soil. About the middle of May several days of continuous dust storms enveloped the whole area, completely obscuring the sun. Unless relief is afforded by considerable rainfall, the serious drought now existing, says Ray C. Steele, superintendent, presages another season of destructive bottomland fires and of dried-up lakes and marshes. During the high-water period following the snow of March 30 and 31, reported in the April SURVEY, 22 deputy rangers, temporarily augmenting the regular ranger force, maintained an effective patrol and kept violations to the minimum. Waterfowl remained in substantial numbers until the water receded, leaving the bottomlands high and dry.

Sparks Set Fire to Refuge Area.--Early on May 9 sparks carried about 1 1/2 miles by a galelike wind from a burning grain elevator in Wabasha, Minn., set fire to an area in the Upper Mississippi River Refuge in Buffalo County, Wis. Prompt action on the part of Ranger Lundberg and his crew saved from destruction several thousand acres of refuge area that had escaped fires for the past several years.

Game Law Violations on Upper Mississippi Refuge.--Pleading guilty in State court to hunting wild ducks during the close season, a 20-year old resident of La Crosse, Wis., apprehended on April 12 by Deputy Rangers Knopp and Frerichs, was fined \$50, and in default of payment, was sentenced to 30 days in jail. The defendant's automatic shotgun was confiscated by the State. In default of payment of a \$50 fine and costs of \$12.31, imposed in State court upon a plea of guilty to unlawful trapping of muskrats, a resident of La Crosse, Wis., apprehended by Ranger Hall and Deputy Ranger Frerichs, was sentenced to 30 days in jail. Another jail sentence of 30 days was imposed upon an offender for trapping muskrats unlawfully in the vicinity of New Albin, Iowa, Ranger Lawrence obtaining the evidence in this case.

Finches and Penguins Imported.--Among the more interesting birds imported recently were 7 spotted-sided finches (Tayvistocka guttata) and 32 yellow-rumped finches (Donacola flaviprymna), from Sydney, New South Wales. Five Galapagos Island penguins (Spheniscus mendiculus) were imported at San Diego, Calif., by a party returning from a cruise in tropical waters and were presented to the San Diego Zoo.

Hungarian Partridge Eggs Enter.--Permits were issued for several shipments of game-bird eggs during the month, one shipment containing 300 Hungarian partridge eggs from Hungary and the rest consisting mostly of pheasant and duck eggs from Canada.

To Collect Natural-History Specimens in Canada.--H. S. Swarth, senior inspector at the port of San Francisco, Calif., left early in April for Atlin, British Columbia, where he expects to spend several months collecting birds and mammals for the California Academy of Sciences and studying the distribution of species in British Columbia.

THE SURVEY

RECEIVED

★ JUL 23 1934 ★

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BUREAU REORGANIZATION

Effective July 1, 1934, Mr. Darling made a number of organization changes in the Biological Survey in order to bring about a more complete coordination between the functions and the objectives of the Bureau. The changes include consolidations of two divisions under a new designation and creation of two new divisions, with changes in personnel and enlargement of functions, as follows:

Division of Game Management, Stanley P. Young in charge; by consolidation of the former Divisions of Predatory Animal and Rodent Control and of Game and Bird Conservation. For efficient administration of the work, the United States will be divided into 8 to 12 regions, each in charge of a regional director, who will be responsible to the head of the Division. State leaders of predator and rodent control as well as field agents, refuge custodians, and patrol officers engaged in conservation work will function under the respective regional directors. These directors will shortly be called to Washington to be instructed in their new duties, and later at their regional headquarters they will assemble their field personnel and, aided by representatives from the Washington offices, acquaint them with the objectives of the enlarged Bureau service. Such conferences will be made a regular part of the year's work, and a carefully studied program will be prepared under the direction of the head of the Division.

Division of Public Relations, H. P. Sheldon, in charge; by consolidation of the Offices of Editorial and Informational Work and of Exhibits, Photographs, and Publication Distribution, with added functions in Bureau correspondence, lecturing, and other methods that will more adequately than has heretofore been possible serve to keep the public acquainted with the accumulated facts and findings of the various scientific divisions. This Division will promote and schedule such activities as can best serve to disseminate information concerning wildlife conservation and restoration, including increased attention to press releases and radio broadcasts, public exhibits, public speakers, invitation speakers at Bureau staff meetings, and special articles for conservation and other magazines. It will be one of the chief objectives of the new Division to bring about a closer acquaintance between the Bureau and the public. The peripheral contacts of the Bureau will be studied with a view to projecting its research and administrative work to the various regions and States of the Union.

To place the publications of the Bureau among its major objectives, instead of their being chiefly by-products of spare time, several competent scientists and commentators will be relieved from administrative routine, through improvements in divisional organizations, and will be provided with facilities and time for the preparation of manuscripts in their chosen fields.

Division of Administration, W. R. Dillon, in charge; with amplification of personnel and duties. This Division will have the responsibility, subject to approval of the Chief, for adjusting the funds to the costs and expenditures of the Bureau and the needs of the various divisions. It will be responsible to the Chief for all

accounts, records, supplies, and expenditures. The head of the Division will report to the Chief on any failure, delinquency, or unnecessary delay in the work; he will keep a check on projects undertaken or recommended; and will have the duty of raising and maintaining standards of promptness and efficiency. The Division will continue all its previous lines of work.

Consolidation of records and maps is to be attained by a readjustment of the Bureau's filing system through a gradual process, the progress to be dictated by convenience. First efforts will be concerned with data on refuges and field projects that undergo a process of rehabilitation. An example given by Mr. Darling is that in one file should be all the maps, charts, and investigators' reports pertaining to a single refuge area, and no such file should be considered complete until it contains all the records of the past that can be collected and the history of completed studies and plans for future developments as made and adopted. He is convinced that such ready accessibility and added service will outweigh any reluctance on the part of division heads to entrusting individual files to the central Bureau system.

Division of Migratory Waterfowl. J. C. Salyer, in charge. To direct the work of this new division, Mr. Salyer comes to the Bureau after valuable experience with the Research Department of the University of Michigan. Among the objectives of the new Division in the establishment and maintenance of a "national migratory-waterfowl program" are careful and thorough planning with regard to present and proposed refuges under Bureau jurisdiction, in the interests of the birds, the public, and the sportsmen; a record of efficiency in the emergency acquisitions under special funds available; and development of a staff of trained refuge custodians, so that the full-utilization principle may be attained on each refuge. Until further notice, however, existing migratory-waterfowl refuges will remain under the supervision of the Game Management Division.

Other divisions will remain for the present as now constituted.

Potentials in the Restoration Movement.--The Chief's reorganization order closes with a brief comment on the essentials of wildlife restoration, and the importance in restoration of providing conducive environment. "Within the Bureau," he states, "are the potential agencies for the promotion of an active national movement toward restoration. It should be the duty of this Bureau to see that the knowledge and approved methods for such public activities are provided. This Bureau should take the lead in extending its services to State educational institutions and conservation organizations that may be able to cooperate in a national restoration program."

GENERAL NOTES

Talks to 4-H Club Delegates.--Mr. Darling on June 20 spoke to the delegates attending the annual National 4-H Club Camp in Washington. The Chief discussed "Preservation of Wildlife in America" at the camp's morning assembly, held in the auditorium of the National History Building of the Smithsonian Institute.

Under the heading "'Ding' Rings the Bell," the June 20 4-H Forage, camp paper, reported as follows: "We went to assembly this morning to see a famous cartoonist, and came away enthusiastic over what wildlife means to the farm. Almost everyone

knows Jay N. Darling as the cartoonist, but we shall always remember him as chief of the Federal Biological Survey." The 4-H Forage also reproduced Mr. Darling's cartoon drawn for the President's Committee on Wildlife Restoration and used as a frontispiece to the Committee's report. The cartoon occupies the last page of the volume for this year, volume 8.

Dr. W. B. Bell, Dr. H. C. Oberholser, C. C. Cottam, and Leon Kelso served as leaders of a nature walk for the delegates in Rock Creek Park on June 17. This field trip was arranged by the Office of Cooperative Extension Work of this Department, in cooperation with the Biological Survey and the National Park Service, Department of the Interior, to acquaint the club members with the interesting birds, mammals, trees, and other attractions of this region, and with methods of organizing and conducting such hikes in connection with 4-H Club work throughout the country.

Confer with President on Refuge Program.--On June 11, Congressman Richard M. Kleberg, of Texas, a prominent conservationist, arranged a conference with President Roosevelt for himself, Senator Frederic C. Walcott, of Connecticut, chairman of the Senate Wild Life Committee, and Mr. Darling to discuss matters relative to the waterfowl sanctuary program. In the absence of Mr. Darling, Dr. W. B. Bell, F. C. Lincoln, and Rudolph Dieffenbach were invited to participate in the conference. The President, Dr. Bell reports, displayed a lively interest in the program that is being developed by the Biological Survey, and showed wide familiarity with the work that is being undertaken with the active support of Congress and conservation agencies throughout the country, and evidenced a desire to aid in every practicable way in furthering the interests of the wildlife-conservation program.

Addresses Western Game Commissioners.--The waterfowl situation is nothing short of appalling in drought-stricken areas in some parts of the Middle-Western States formerly important as nurseries for these birds, and conditions are extremely bad on the breeding grounds in Iowa, Nebraska, Minnesota, and the Dakotas, and in Missouri, Illinois, Indiana, Ohio, Michigan, and Wisconsin. Mr. Henderson told the Western Association of State Game and Fish Commissioners at their 14th annual conference held in Portland, Oreg., June 14 to 16. After emphasizing the necessity for "extraordinary efforts to preserve an adequate supply" of breeding birds, Mr. Henderson outlined the Survey's 3-fold plan of wildlife restoration. This plan, he explained, includes (1) a more intensive law-enforcement campaign, (2) improvement of existing wild-fowl sanctuaries, and (3) prompt and systematic acquisition of additional refuge areas. He also discussed outstanding problems in big-game management, in the administration of fur resources, and in combating wildlife disease. "The present system of fur-animal conservation," he declared, "has not proved effective. The problem is national in its ramifications, and the seriousness of the situation is such that a coordinated national policy based on scientific findings should be established throughout the ranges of all fur animals." Mr. Henderson's address was delivered on Friday morning, June 15.

The conference was attended also by A. M. Day, who addressed the gathering at the afternoon session on June 15, and by Stanley G. Jewett and Ira N. Gabrielson, all of the Division of Predatory Animal and Rodent Control.

Serve on Audubon Committees.--A recently published list of committees of the National Association of Audubon Societies includes on the Waterfowl Committee, F. C. Lincoln; on the Mammal Committee, Vernon Bailey; and on the Hawk and Owl Committee, Leon Kelso, O. J. Murie, and Dr. Walter P. Taylor--all of the Biological Survey. It is stated that: "The wide-spread and large membership of the Hawk and Owl Committee represents an experiment, and the Board [of Directors of the Society] hopes that all members of this Committee will initiate suggestions and recommendations."

To Represent Bureau at International Congress.--Dr. Alexander Wetmore, Assistant Secretary of the Smithsonian Institution and a former member of the Biological Survey, who will attend the Eighth International Ornithological Congress as a delegate of the Smithsonian Institution, will represent this Bureau also. The congress will be held at Oxford, England, July 2 to 7, and it is expected that it will be attended by some 300 members, including representatives from all parts of the world.

Credit Union Organized.--A. M. Day, of the Division of Predatory Animal and Rodent Control, has been chosen vice-president and one of the directors of the newly organized "Agricultural Employees Credit Union", of which Frederic C. Howe, Consumers' Counsel of the Agricultural Adjustment Administration, is president and a director. Mrs. M. B. Leonard, of the Division of Game and Bird Conservation, is an additional member of the board of directors. The organization is sponsored by the Director of Personnel and Business Administration, and is formed along the lines recommended by the Consumers' Counsel, it being a savings and loan association owned and operated by employees of the Department. Dr. Stockberger, in suggesting that opportunity be given members of the Bureau to become members of the organization, states that "experience elsewhere with credit unions indicates that The Agricultural Employees Credit Union will serve a useful purpose." There are now more than 2,300 credit unions in the United States organized for the purpose of promoting thrift among members by accumulating their savings and thus providing a source of credit for loans. Nine of the nineteen credit unions organized in the District of Columbia under the provisions of an Act of Congress passed in June 1932 are among Government employees. Information regarding membership, savings, and loans to members of this Department's Credit Union will be furnished by either of the Bureau's members of the board of directors.

Employees to Organize Dramatic and Musical Organizations.--Dr. W. W. Stockberger, Director of Personnel and Business Administration, addressed about 200 members of the Department in the new auditorium, South Building, on June 19, commending them on their interest shown in initiating Departmental groups in dramatics and in orchestral and choral work, and praising these methods of self-expression. Wm. H. Cheesman, Editor of the Survey, was made a member of the committee on officers.

Official Publications have been received as follows:

Amendment of regulations 12, 13, and 14 of the regulations respecting game animals, land fur-bearing animals, game birds, nongame birds, and nests and eggs of birds in Alaska. Alaska Game Commission Circular No. 11, Supplement 2, 2 pp., May 1934. Received June 19.

Western duck sickness: A form of botulism. By E. R. Kalmbach, Senior Biologist, Division of Food Habits Research; with bacteriological contributions by Millard F. Gunderson, Department of Bacteriology and Immunology, University of Minnesota. Technical Bulletin No. 411, 82 pp., illus. May 1934. Received June 26.

Planting for wild life in the corn belt. By W. L. McAtee, Principal Biologist, in Charge Division of Food Habits Research. Leaflet Bi-1326, 2 pp., May 1934. Received June 5.

Planting for wild life in the cotton belt. By W. L. McAtee, Principal Biologist, in Charge Division of Food Habits Research. Leaflet Bi-1327, 2 pp., May 1934. Received June 6.

Directions for setting foothold trap for capturing animals uninjured. By Vernon Bailey, retired Chief Field Naturalist, Division of Biological Investigations. Leaflet Bi-1332, 3 pp., June 1934. Received June 14.

Questions and answers (45) on the work of the Bureau of Biological Survey. (For use in field offices.) Leaflet Bi-1337, 11 pp., June 1934. Received June 30.

Recent developments in wild-life conservation. Address by W. C. Henderson at the Fourteenth Conference of the Western Association of State Game and Fish Commissioners, at Portland, Oreg., June 15, 1934. 8 pp. Received June 18.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Gabrielson, I. N. Unusual plants in western gardens. Gard. Chron. Amer. 38 (3): 73-74, illus. March 1934.

----- The gray landscape, another flower paradise of America. House and Garden 65 (6): 46-47, 78-96, illus. June 1934.

Jewett, S. G. The season (ornithological): Portland (Oreg.) region. Bird-Lore 36 (3): 188-189. May-June 1934.

Kelso, Leon. The short-eared owl in Costa Rica. Oologist 51 (4): 40. April 1934. (Published in June.)

----- The loon in Washington, D.C. Oologist 51 (4): 45-46. April 1934. (Published in June.)

Murie, O. J. Magpies and ferruginous rough-leg feeding together. Condor 36 (3): 114. May-June 1934.

Oberholser, H. C. The season (ornithological): Washington (D.C.) region. Bird-Lore 36 (3): 181-182. May-June 1934.

ADMINISTRATION

Rules on Expenditures for Passenger-Car Repairs.--In the Act of Congress limiting the amount expendable during any one year for repairs to passenger-carrying vehicles, the term "market price" means the price f.o.b. factory, according to an interpretation made on June 7 by Seth Thomas, Solicitor of the Department. The restrictions outlined in PBA Circular No. 224, dated March 23, 1934, thus limit the expenses for maintenance, upkeep, and repair on any one car to an amount not in excess of one-third of the f.o.b. factory price of a new vehicle of the same make and class.

BIOLOGICAL INVESTIGATIONS

West Virginia Cooperation Planned.--In company with representatives of the Forest Service, Dr. Bell attended a conference at Elkins, W.Va., on June 22, to consider ways and means of cooperating with the University of West Virginia in a study of the forest and other wildlife resources of the State, especially the 10 counties in the northern Monongahela Valley region, where rehabilitation work is most urgently

needed. Plans were outlined that will be presented by the university officials to the Biological Survey, the Forest Service, and other agencies concerned. Dr. Bell also visited the State University, at Morgantown, for further conferences regarding available facilities for field work. He returned to Washington on June 23.

Study Waterfowl Conditions.--E. A. Preble returned to Washington, D.C., on June 19 from a study of waterfowl conditions in the wooded and lake region of Alberta, Canada. Accompanied by L. J. Goldman, he traveled by canoe from the end of rail communication at Waterways, Alberta, down the Athabaska River to Fort Chipewyan. The two covered the vast delta region west of Lake Athabaska and made interesting and important observations of waterfowl abundance and factors affecting the breeding conditions, including water, food, and cover. Mr. Goldman is continuing studies of the waterfowl situation in Alberta, Saskatchewan, and Manitoba.

Reports from E. A. Goldman and C. M. Aldous show satisfactory progress in their study of waterfowl breeding conditions in Minnesota and northward into Manitoba. At Winnipeg they met the Commissioner of the Manitoba Department of Game and Fish and were given helpful assistance by him and members of his staff.

Webster H. Ransom, of the Division of Game and Bird Conservation, has been making a study of the abundance of breeding waterfowl and conditions affecting them in Alberta and western Saskatchewan, including some regions affected by the prevailing drought.

O. J. Murie reached Okanagan Landing, British Columbia, early in June and has been observing waterfowl conditions in that Province.

A. H. Howell returned to Washington on June 22 after making a detailed survey of waterfowl conditions in the breeding grounds of the Lake Erie marsh in northern Ohio.

Field Laboratories Nearing Completion.--Dr. Walter P. Taylor reports that the two biological field laboratories authorized under the PWA program in Arizona are nearly completed and will make a most useful addition to the facilities for study of forest and grazing conditions as affected by wildlife.

Musk-oxen Born in Alaska Herd.--Seven musk-oxen calves were born this year in the herd transplanted to Alaska in 1930, reports L. J. Palmer, who is in charge of the Bureau's experiment station at College. Two were born on April 29--the first newborn musk-oxen in the Territory in a century--and the last on June 26. One of the seven was stillborn. In April 1927 the Territorial Legislature in a memorial to Congress urged an appropriation for reestablishing musk-oxen in Alaska. Under the active leadership of Senator Peter Norbeck, of South Dakota, and Representative C. C. Dickinson, of Iowa, an appropriation was made, and the Survey undertook the task. Thirty-four young musk-oxen were transplanted from northeastern Greenland to the Territory in the summer and fall of 1930. These were captured by a Norwegian collector, and after transshipment in Norway traveled on an ocean liner to New York. Following a 30-day quarantine period, the animals were taken by rail to Seattle, thence by ship to Seward, Alaska, and again by rail to the Reindeer Experiment Station, near Fairbanks. They were subsequently placed on a suitable range, and although there have been a few casualties, the herd has prospered. Now that the imported animals have matured and are reproducing, prospects are better that the purpose of the transplanting will be completely realized.

Appointment.--Mrs. Mary A. Burtner was given a temporary appointment as stenographer in this Division, effective June 22, in connection with increased work on waterfowl investigations and reports.

FOOL HABITS RESEARCH

Inspects Erosion Control Project.--Mr. McAtee early in June inspected the Navajo Erosion Control Project, on the Navajo Indian Reservation in northeastern Arizona and northwestern New Mexico. Grazing by sheep and goats, he reports, has been very destructive on this area and as a result little plant or wild-animal life is present. After completion of this work, Mr. McAtee left to confer with field men in California.

Inspects Refuge Areas.--A. C. Martin left Washington, D.C., on June 4 to investigate proposed refuge areas in North Carolina, South Carolina, and Virginia. He planned also to cooperate with State officials in a study of the waterfowl food resources in eastern North Carolina and on an area in Virginia and later to join Forest Service officials in an investigation of wildlife refuge possibilities in the Dismal Swamp, in southeastern Virginia and northeastern North Carolina.

Studies Waterfowl Conditions.--At the Upper Mississippi River Wildlife and Fish Refuge, F. M. Uhler recently studied the abundance of nesting waterfowl and the condition of their feeding grounds. In 225 miles travel in the bottomlands between Wabasha, Minn., and Savanna, Ill., from May 30 to June 8, Mr. Uhler found that with the exception of the wood duck and the hooded merganser--both tree-nesting birds--the breeding waterfowl population was alarmingly small. Owing to the severe drought throughout this region, a large portion of the marshes, he reports, were totally dry. Later, in studying the factors responsible for the destruction of waterfowl nests in the Lake Erie marshes between Toledo and Port Clinton, Ohio, Mr. Uhler found that considerable damage had been caused by house rats, skunks, and crows.

Study Crow Depredations.--C. C. Sperry, who has been studying crow depredations on nesting waterfowl in North Dakota, South Dakota, and Montana since May 14, has returned to his headquarters in Denver, Colo. He reports little progress in his study as most of the normal waterfowl breeding areas had dried up. E. R. Kalmbach is making a similar investigation in the southern part of the Prairie Provinces of Canada relative to reported damage by crows.

Investigates Reports of Crow and Magpie Damage.--At the request of local sportsmen, S. E. Aldous recently investigated reports of crow and magpie depredations upon nesting waterfowl in the lower part of the South Platte River Valley, Colo. During a 3-day investigation, May 18 to 20, he reports he traveled more than 440 miles, but saw only 5 crows and found the magpie damage to be negligible.

Appointed.--Miss Pauline McCauley reported for duty on June 4 as typist under temporary appointment in connection with studies of proposed refuge areas.

FUR RESOURCES

Addresses Fur Farmers.--En route from California to Washington Chas. E. Kellogg, on June 12, attended a meeting of the Rocky Mountain National Fur Growers' Association. He spoke of the work being conducted by the Bureau to assist fur farmers in developing their business, and stressed the importance of practicing economy in feeding in order to offset the effect of declining raw-fur prices.

Speed PWA Work at Rabbit Station.--Since taking up his duties as director of the U.S. Rabbit Experiment Station, Fontana, Calif., G. S. Templeton has been primarily interested in arranging for the early completion of the PWA projects, which will afford equipment permitting expansion in research and making it possible to furnish data to rabbit breeders more efficiently. With Mr. Kellogg and A. E. Suitor, Mr. Templeton has also conferred with cooperators in California and with local rabbit breeders.

New Experiment Started.--At the Rabbit Experiment Station 100 New Zealand white and New Zealand red rabbits approximately 56 days of age were placed on a feeding test on May 15 to determine the "bloat"-control possibilities of using feeds manufactured in pellet form. The rabbits have been placed in the new metal developing pens, each of which accommodates 20 to 30 rabbits, and will later be transferred to individual metal hutches.

Inspects Work at Saratoga Springs.--On May 28 and 29 Mr. Ashbrook visited the U.S. Fur Animal Experiment Station, Saratoga Springs, N.Y., to inspect the PWA construction work there and to discuss with Dr. Karl B. Hanson projected breeding and feeding experiments. Mr. Ashbrook reports that the station is in splendid condition and that the progress made in the construction work seems exceedingly good in view of the severe weather experienced last winter and the delays in obtaining materials. The new addition to the feed house was recently completed, affording storage facilities and a place for handling and mixing the rations. The new battery of permanent breeding pens, the shed, and the wire-floor breeding pens are nearly completed.

Plant Pine Trees.--A number of small seedling pine trees, donated to the fur-animal station by the New York Conservation Department, are being replanted to furnish shade for the animals and to improve the landscape.

New Breeding Stock Purchased.--Genetic studies are being conducted at the Fur Animal Experiment Station to determine the factors controlling the degree of silvering in foxes, four pairs of pure-bred Alaskan black pups and one pair of adult standard silver foxes having been purchased for use in these studies. This experiment will provide a nucleus for other studies to be made as the desirable types of foxes are produced.

Whelping Season Ends.--Because of unusual disturbances at whelping time caused by the construction work, a small loss among the fox pups was experienced this year at the Fur Animal Experiment Station. Forty-three pups have been weaned thus far, and three more litters totaling 12 pups are to be weaned before the end of June. All these pups, as well as the litters of martens and minks, are making excellent growth, Dr. Hanson reports.

Karakul and Muskrat Pelts Graded.---On May 31, Mr. Ashbrook, in cooperation with representatives of the raw-fur trade in New York, graded and valued pelts taken from Karakul lambs produced at Beltsville, Md., and muskrat skins taken on the wild-life demonstration area administered by the Bureau. Thirty-five Karakul skins were taken at Beltsville this season, and in accordance with a cooperative agreement of the Bureau of Biological Survey, the Bureau of Animal Industry, and the Bureau of Home Economics, the pelts were graded in the Biological Survey and then taken to New York for further inspection. The pelts will be dressed and dyed, then regraded and revalued. The muskrat skins will be dressed but not dyed. This research work is being conducted to determine the molt cycle and prime-fur period.

Inspects Construction Work at Blackwater Station.---On June 13 Mr. Ashbrook inspected the PWA construction work being carried on at the fur-animal station on the Blackwater Migratory Bird Refuge, near Cambridge, Md. The minkery and feed storage shed are completed, he reports, and the rabbitry and the caretaker's house will be finished by the end of June. The increased pen accommodations for muskrats, minks, and rabbits will make it possible here to check information obtained at Saratoga Springs, N.Y., and Fontana, Calif.

DISEASE INVESTIGATIONS

Inspects Disease Work.---Dr. Shillinger left Washington on June 14 to inspect the Bureau's cooperative wildlife disease investigations in the Central States. The collections at the University of Minnesota are at present being supplemented by specimens of diseased animals from Wisconsin, Michigan, and Montana. From several districts in these States highly virulent strains of the tularemia organism have been isolated from ticks and rabbits.

Addresses Minnesota Conservationists.---Dr. Shillinger on June 25 addressed the members of the Minnesota Game Protective League in Fergus Falls on "The New Deal in Conservation," outlining the Bureau's three-fold program of law-enforcement, refuge improvement, and prompt but systematic acquisition of more refuge areas. Dr. Shillinger also discussed the subject of abnormalities in wildlife, illustrating this talk with lantern slides.

Tularemia Causes Loss of Sheep.---During his recent inspection trip in Montana, from which he returned on May 26, Dr. Shillinger found that more than 200 sheep near Ringling had died as a result of tularemia, the diagnosis having been made by the Montana State Board of Health and the Rocky Mountain Spotted Fever Laboratory. Examined postmortem, the animals showed gross pathological changes. The fatalities, Dr. Shillinger learned, were among a flock of about 1,200 sheep that had been moved shortly before the outbreak to an area on which jack rabbits were numerous, and the tularemia, it is believed, was present among these rodents, the disease being transmitted to the sheep by ticks. Losses stopped after the sheep were dipped and moved to a new range, and in response to urgent requests the Biological Survey is now assisting in an attempt to combat the disease in this area. In cooperation with local authorities the Bureau is supervising rodent control to reduce the numbers of jack rabbits and squirrels, hosts of the disease-carrying tick.

Changes Official Station.--Dr. L. C. Morley, who has been stationed for two years at Richmond, Va., engaged on a study of diseases of game birds, has been transferred to College Park, Md., to continue his studies in cooperation with the University of Maryland. He will spend part of his time on the Bureau's wildlife demonstration area at Beltsville.

Appointed.--Miss Ruth M. Broadwater was appointed clerk-stenographer in this Division, effective June 16. Miss Broadwater filled the position vacated by Mrs. Marion H. Reeves, who was transferred a year ago to the Agricultural Adjustment Administration.

PREDATORY ANIMAL AND RODENT CONTROL

Purchasing Field Equipment.--W. E. Crouch spent several days in Detroit and Pontiac, Mich., in the middle of June on work connected with the purchase of passenger-carrying cars and trucks for use in the field work of the Division.

In the West.--A. M. Day left Washington on June 8 to inspect field stations in the Rocky Mountain and Pacific Coast areas. With Stanley G. Jewett and Ira N. Gabrielson he also attended the conference of the Western Association of Game and Fish Commissioners in Portland, Oreg., June 14 to 16. En route back to Washington late in June Mr. Day planned to inspect the bait-mixing station at Pocatello, Idaho, the field office at Cheyenne, Wyo., and the field office and the Control Methods Research Laboratory at Denver, Colo.

Reports Heavy Predator Infestation in Texas.--C. R. Landon, leader of predatory-animal control in Texas, reports that between September 1, 1931, and March 31, 1934, a total of 2,637 bobcats, 13,310 coyotes, 67 mountain lions, and 9 ocelots were removed from Webb County. The chairman of the Texas Game, Fish, and Oyster Commission states that as a result of this work a considerable increase in deer has been noticed in that part of Texas. Mr. Landon is obtaining some mountain-lion specimens from this part of southwestern Texas for the Bureau's collection in the National Museum.

Emergency Rodent Work in Full Swing.--Rodent control on national forests and Indian reservations in connection with the emergency program is now being conducted under Biological Survey supervision in every State west of the Rocky Mountains and in North and South Dakota. On national forests the work is carried on by CCC crews from established Forest Service camps, the more isolated areas being treated by laborers employed with PWA funds allotted to the Bureau. During May a total of 1,138,577 acres of lands within the national forests and range reserves were thus treated for prairie dogs, kangaroo rats, ground squirrels, pocket gophers, and porcupines, making a total of 3,426,681 acres since the beginning of the emergency program. On Indian reservations the work is being done largely by Indian labor under an ECW authorization. The mixing station at Pocatello, Idaho, is preparing the poisoned baits and making shipment in carload lots to various field points. The station has been working at peak capacity, running 24 hours a day in order that the grain may be properly treated and shipped to the field in the freshest possible condition. All this work is being done under the supervision of field leaders of the Biological Survey. An additional rodent-control project has recently been initiated in Oklahoma on the Pawnee Indian Reservation, where three counties are cooperating

in a prairie-dog control campaign by supplying funds for treating deeded lands intermingled with infested Indian lands. The Bureau of Indian Affairs, Department of the Interior, in accordance with a general cooperative agreement with the Biological Survey, has allocated ECW funds for treating the Indian-owned lands. In this way the entire project is being systematically treated. The Bureau has transferred an experienced field assistant from Texas to supervise the project.

Foot-Hold Trap Improved.--The foot-hold trap for capturing animals uninjured, designed and patented by Vernon Bailey, retired chief field naturalist of the Bureau, has been given thorough field trials by Mr. Bailey in California and some additional improvements made that should increase its efficiency and practicability in predatory-animal control. The Division has purchased 24 of these traps and in the course of the coming fiscal year will parcel them out to the various districts for further trial in the Bureau's predatory-animal work. Full instructions as well as photographs of the trap will accompany the shipments.

Plan Rodent Control to Decrease Soil Erosion.--L. C. Whitehead, leader of rodent control in the Texas district, states that plans are being laid for controlling pocket gophers on some 25,000 acres of the Duck Creek Water Shed project in cooperation with the Soil Erosion Service, Department of the Interior. The work, it is expected, will get under way early in November.

In the State of Washington, Leo K. Couch, leader of predatory-animal and rodent control, reports treating 10,000 acres through the use of CCC labor in the Palouse country. This work has been carried out under a cooperative agreement with the regional director of the Soil Erosion Service.

Reports Speedy Wolf Capture.--Ben E. Foster, leader of predatory-animal and rodent control in the Arizona district, reports that Hunter E. E. Anderson took a large male wolf on a ranch 35 miles east of Douglas following the killing by this wolf of 3 registered Hereford cows, each shortly to calve. The cattle were killed on April 29, and Hunter Anderson trapped the wolf on May 5, one of the speediest wolf captures made in the history of the Bureau's cooperative work.

Visits Field Station En Route to Denver.--En route back to his headquarters in Denver, Colo., after conferring with Bureau officials and others in the East, F. E. Garlough early in June met G. C. Oderkirk, leader of the Lakes States district, and proceeded with him to inspect the ECW snowshoe-rabbit control in northern Wisconsin and Minnesota. At Duluth, on June 12, they met H. J. Spencer, formerly of the Control Methods Research Laboratory but now on a detail to the Forest Service, and Forest Service officials, after which Mr. Garlough returned to his official headquarters at Denver, stopping en route at Minneapolis, Minn., where he conferred with C. M. Aldous.

LAND ACQUISITION

Funds Now Available for Refuges.--The \$1,000,000 fund authorized under Executive Order dated May 28, 1934, has now become available for the purchase or rental of various lands suitable for refuges and for protecting and conserving migratory birds and other forms of wildlife. Final plans are being completed for the acqui-

sition of areas in the Mississippi flyway and elsewhere, some of which have long been under contemplation but could not be acquired owing to curtailed funds.

Inspecting Refuges.--Fred F. Friend, associate civil engineer, is in the field inspecting Crescent Lake Migratory Bird Refuge, Nebr.; Railroad Valley Migratory Bird Refuge, Nev.; and the Bear River Migratory Bird Refuge, Utah. Harold W. Hicks, assistant land valuation engineer, has returned from the Upper Mississippi River Refuge, where he has been examining and appraising lands for refuge purposes.

GAME AND BIRD CONSERVATION

Makes Lacey Act Inspections.--F. P. Callaghan was in New York City during the week of June 11 working with U.S. Game Protector P. S. Farnham, conferring with members of the fur trade, and making general inspections under the Lacey Act.

Observes Large Caribou Run.--"The present run of caribou is the biggest spring run that I have ever seen," Alaska Game Warden Sam O. White is quoted as saying in the Fairbanks (Alaska) News-Miner of May 10. "Caribou," the quotation continues, "for a week have been crossing the Cleary Summit on the Steese Highway, about 18 miles from Fairbanks. Most of the herds are from the Tolovana and Rampart areas, and some, I believe, from Old Man River district on the Kobuk watershed. They are going to the calving grounds on Fish Creek and in the Chena Hot Springs district. I never saw such large herds. Recently I saw an unbroken string four miles long with the animals 10 or 15 abreast. There was not a break in the line. The herd was comprised principally of cows and young animals. From a plane, the course of travel of the herds can be followed and the large number of animals can be observed. I have interviewed numerous trappers and prospectors as to the physical condition of the animals after one of the hardest winters in the North in the history of the Alaska Weather Bureau. Uniformly I have been told that the animals are in fine condition."

Refuge Grazing Permitted as Drought Relief Measure.--Selected areas in the bottomlands of the Upper Mississippi River Wildlife and Fish Refuge were temporarily opened to public grazing on June 2 to relieve wide-spread distress resulting from severe drought conditions. This exception to the Bureau's general policy of prohibiting grazing on refuge areas followed a request from the Governor of Wisconsin and urgent appeals from the distressed farmers in the region. The emergency grazing was restricted to areas not subject to intensive nesting, and precautions were taken to protect the breeding areas. Special regulations immediately were promulgated by Ray C. Steele, superintendent of the refuge, and arrangements were made for issuing permits, the grazing being thus strictly regulated.

Fire Threatens Bison Range.--Fire on May 27 threatened damage to the National Bison Range, Mont., but Dr. Robert S. Norton, the protector, and other employees at the Bison Range, together with neighboring residents, got the fire under control before it reached the range. A farmer living along the boundary of the range had been cleaning out an irrigation ditch and had set fire to weeds, thinking that the grass was too green to burn, but it had been so dried by the intense heat prevailing during the latter part of May that it burned readily.

Porcupine Kills Mountain Sheep Ewe.--One of the finest mountain sheep ewes at the National Bison Range recently died from serious injuries received by coming in contact with a porcupine that she was probably afraid would injure her lamb. The animal was roped and removed to a Range sub-station by Dr. Norton, with other employees of the Range, who forded the Jocko River up to their waists in icy water. Dr. Norton found that many of the quills had penetrated beyond reach, and a post-mortem revealed that about 25 had pierced the right lung, and that one had gone through the lung and into the heart for more than an inch.

Notes on Birds and Conditions at Bear River Migratory Bird Refuge.--Superintendent George E. Mushbach, of the Bear River Migratory Bird Refuge, Utah, reports that water in all units is gradually lowering but otherwise conditions at the refuge are good. There is apparently a considerable increase in the number of waterfowl on the area, including a great many male pintails in large flocks, an unusually large number of long-billed curlews, numerous pairs of geese with young, and many broods of young ducks. One flock of 10 young mallards was noted. The hatching season has been particularly favorable, and many of the birds are hatching out several weeks in advance of the usual time, although many ducks and shorebirds were still nesting on June 1. Food conditions in all units of the refuge are excellent. Submerged plants in Unit 2 seem to be exceptionally plentiful; in fact, Mr. Mushbach says he has never before seen so much feed in that unit. Considerable new vegetation is appearing along the inside of the main dikes, principally salt grass and tules. Up to June 1, there was no evidence of sick birds, though the weather has been extremely hot and the water low for several weeks.

Some Relief from Drought Reported at Several Points.--Protector Wesley D. Parker, of Sullys Hill Game Preserve, N.Dak., reports that during the week of June 3 rains gave some relief to that dry region, moistening the ground to a depth of 4 or 5 inches. This was a great help to pastures and late crops, though not so much to the early crops. Rain at Wind Cave Game Preserve, S.Dak., where the grass was fast drying, also has been reported by James L. Lynam, who is acting in charge. Latest reports from the Elk Refuge, Wyo., state that a good rain there had soaked the soil from 2 to 4 inches. At Lake Malheur Bird Refuge, Oreg., also, a much needed rain has been received. The birds on the area were greatly benefited, and the crops throughout the vicinity as a result will be considerably larger than was expected this year.

Conditions Severe at the Elk Refuge.--Before the recently reported rain had fallen at the Elk Refuge, all forage not under irrigation was suffering from lack of moisture, reports Almer P. Nelson. As a result of dry fall months and a light snowfall during winter, the soil in that region was dry to a depth of several feet. Nearly all the snow, Mr. Nelson states, has melted from the high mountains, but even this had little effect in raising the flow of water in the streams from which irrigation water for the refuge is obtained. Less than half the meadows near headquarters can be irrigated. On other parts of the refuge 170 acres were plowed and seeded with oats and grass seed.

CCC Camp Moved.--The Civilian Conservation Corps camp established at the St. Marks Migratory Bird Refuge, Fla., in June 1933 was moved from that area to Leon County on May 26.

Pelicans at Anaho Island Bird Refuge.--A recent report states that the pelicans appear to be thriving at the Anaho Island Bird Refuge, Nev. There are 9 colonies of these birds on the refuge--five large and four small--and there probably are considerably more birds on the refuge this year than last.

Reappointed.--Charles F. Cooper was reappointed this year to take care of the Anaho Island Bird Refuge during the nesting season; and Harold P. Bennett was reappointed to give similar protection to the birds at the refuges in and about Tampa Bay, Fla.

Aard-vark Imported.--Several large and interesting shipments of birds and mammals were entered during May. One shipment arriving at New York City on May 18 contained 58 different species of birds and 29 species of mammals, including an aard-vark (Orvoteropus afra), a nocturnal burrowing animal of South Africa that is rare in captivity. The aard-vark is now on exhibition at the National Zoological Park, Washington, D.C. Among the more interesting birds imported were two tree hoopes (Pheniculus purpureus) and two hammerhead storks (Scopus umbretta).

THE SURVEY

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U. S. Department of Agriculture

GENERAL NOTES

Advisory Board Considers Hunting Prospects.—Following the recent annual meeting of the Advisory Board, Migratory Bird Treaty Act, in Washington, on July 11-12, Mr. Darling outlined what the sportsmen of the United States can expect in the way of duck hunting in the future. The prospects, he said, are a fixed season from October 1 to January 15 with the number of days of shooting varying from year to year in accordance with the abundance of waterfowl.

To bring about a reduction this year in the number of hunting days because of the diminished supply of ducks, the Board favored a 30-day shooting season between October 1 and January 15, with time and spread of season in each State to be recommended to the Survey by the State game department. This provision will reduce the number of days that the birds may be shot, but will give each State the privilege of suggesting its own season. For example, a State may take 30 days consecutively; or it may choose 5 consecutive days each week for 6 consecutive weeks; or 3 consecutive days each week for 10 consecutive weeks; or 2 consecutive days a week over the whole 15-week period.

Though the emergency situation facing the ducks calls for a reduced kill, the plan suggested by the Bureau would increase the sportsman's privileges so far as possible. The Board discussed other plans but finally favored the Survey's recommendation as dealing most fairly with both birds and sportsmen. It fixes the outside limits of the time when the birds may be taken, but allows flexibility each season in the actual number of shooting days, in accordance with the abundance of the ducks.

The Advisory Board also recommended that the baiting of waterfowl in the vicinity of a shooting stand or blind be prohibited except under permit issued without charge by the Secretary of Agriculture. Permits would be limited to use at stands or blinds where baiting is not abused or unduly destructive to the birds or where insufficient natural food makes baiting or feeding desirable. The Board also recommended strengthening of the regulation that prohibits the baiting of mourning doves.

The hours of shooting each day favored by the Board would extend from sunrise to sunset. This would eliminate the shooting formerly permitted half an hour before sunrise, but would permit shooting to begin at sunrise on the opening day instead of at noon as previously. The daily-bag limit, it was recommended, should remain at 12 for ducks in the aggregate, with a limit of 5 for birds of critical species, and the list of fully protected waterfowl should remain the same.

With regard to zoning, the Board adopted a resolution recommending that when in the discretion of the Biological Survey the equitable distribution of shooting could best be obtained thereby, the Bureau take action to zone the States in cooperation with the respective game departments. Under the new provision permitting State game departments to select the shooting days, however, there will be much less need for Federal zoning of individual States.

Following a session open to the public, the Advisory Board adopted its recommendations in an executive session at which members of the Biological Survey staff were invited to be present and answer questions raised.

The Survey's data were presented at the open meeting as follows: Mr. Darling, "Status of the Biological Survey"; Clarence Cottam, "Reports on Nesting Investigations"; Frederick C. Lincoln, "Reports on Migration Statistics"; Stanley P. Young,

"Reports on Law Enforcement"; Dr. W. B. Bell, "Reports on Conditions in Breeding Areas and on Destruction by Crows"; and J. C. Salyer, "Report on Refuge Program."

Based upon the most intensive waterfowl investigations ever undertaken, these reports demonstrated that the waterfowl population has decreased seriously. As a remedy, Mr. Darling presented a program of restoration, including the conservation of an adequate breeding stock, a stricter enforcement of protective laws and regulations, and the provision of sanctuaries as nesting, wintering, and feeding grounds.

Work of President's Committee Completed.--In a letter of June 22 to Thomas H. Beck, chairman of the President's Committee on Wildlife Restoration, Secretary Wallace said: "Arrangements now under way seem far enough along to assure us of having about \$8,500,000 to start the program recommended by the . . . Committee, of which you have been chairman. This means the acceptance of the general character and direction of the program proposed by the Committee, and completes the work of the Committee. I regard this as a very important achievement, and I wish to express to you my hearty appreciation of the remarkable service you have performed. . ."

Landscape Plans for Beltsville Area Completed.--During the week of July 9, Paul P. Moller, of the Office of Exhibits, prepared landscape plans for developing the Bureau's 800-acre Wildlife Demonstration Area, at Beltsville, Md. The plans cover location of buildings for the headquarters unit as well as necessary structures for the propagation of game birds and fur animals and other purposes. Improvement of woods and cover and planting for the increase of food supply for wildlife are also provided for. Detailed sketches have been made to illustrate the type of building suggested for the laboratory and administration buildings, and the cabins at various points for caretakers. Mr. Moller has been successful in presenting a complete and artistic representation of the ideas for developing this area as suggested by the Bureau's committee, which consists of Rudolph Dieffenbach, of the Division of Land Acquisition; Frank G. Ashbrook, of the Division of Fur Resources; and E. A. Goldman, of the Division of Biological Investigations.

The new drawings bring to completion the preparation of an atlas for this area. It will include a series of maps resulting from topographic surveys with a one-foot contour interval, soil-cover surveys, planting-plan maps, preliminary plans for the construction of dams designed to impound water and create two lakes, and a soil survey, the last having been made by the Bureau of Chemistry and Soils.

Progress has been made on plantings for seed crops. This work was undertaken late in spring and under rather unfavorable weather conditions. Dr. L. C. Morley who has been appointed project director in charge of general administration of the area, reports, however, that a fair growth of food and cover plants has been established. He has also located several nests of bobwhite quail on the edges of the plantings.

Former Survey Man Advanced.--Dr. Edward A. Chapin, formerly (1917-1920) with the Bureau's Division of Food Habits Research and (1920-1926) with the Bureau of Animal Industry, has been appointed curator of insects in the United States National Museum, effective July 1, 1934, to succeed the late Dr. John Merton Aldrich. Since 1926 Dr. Chapin has been associate entomologist in the Division of Identification and Classification of Insects in the Bureau of Entomology, with offices in the National Museum. While connected with the Biological Survey he made a detailed study of the food habits of the vireos, the results being published as Department Bulletin 1355.

ADMINISTRATION

Permanent Quarters Occupied.--With space assignments completed for the offices at present allotted to the Biological Survey in the new South Building, moving from

Building C and part of Building F was accomplished during the last week of July. The net result is that all divisions except Food Habits Research, which is still in Building F; Biological Investigations offices concerned with care of the mammal collections in the National Museum; and the taxidermist's laboratory, which is in the Old Fisheries Annex, are now together for the first time since decentralization from the Bieber Building became necessary some years ago. The Bureau's offices in the new South Building are on the 4th floor, in wings 4 and 5 and the connecting section of the C Street front.

PUBLIC RELATIONS

Two New Films on Wildlife Released.--Two new sound pictures on the preservation of wildlife, combining scenic beauty with interesting and unusual shots of game mammals and birds, have just been released.

For "Our Wildlife Resources", a two-reel film contrasting the wildlife of North America as it existed in the 16th Century with that of today, former Chief Paul G. Redington delivers the lecture. The film shows the methods employed by the Bureau to preserve species threatened with extinction. Scenic shots show birds and mammals in natural surroundings.

"The Wapiti of Jackson Hole," a one-reel picture, tells the story of the elk and their winter refuge near Jackson Hole, Wyo. The lecture for this is by O. J. Murie, biologist of the Division of Biological Investigations. The life history of the elk is outlined, and striking scenes are presented illustrative of aid given to the elk herd in hard winter seasons, in an effort to insure the survival of the remnants of a once great primitive herd. Other wildlife of the region is pictured and discussed also.

Prints of these films in 35 mm. size, sound-on-film, may be borrowed from the Department's Office of Motion Pictures. No rental is charged, but the borrower pays transportation.

Facilities for Foreign Language Translations.--The Department Library advised on July 20 that translating work in French, German, and Dutch for all bureaus as needed will be done through the Library by Miss Emma W. J. Reyers, at the rate of 71 cents an hour, with a monthly limitation of \$45. That the Library may keep account and see that the maximum for the Department is not exceeded, the Bureau will forward to the Library for record the vouchers presented for Miss Reyers' services.

Official Publication.--The Yearbook of Agriculture for 1934, containing the following articles, was received on July 13:

- Bird species not menaced by local control campaigns. By W. L. McAtee, Principal Biologist, in charge Division of Food Habits Research. Pp. 149-152.
- Eelgrass disappearance has serious effects on waterfowl and industry. By Clarence Cottam, Assistant Biologist, Division of Food Habits Research. Pp. 191-193.
- Game and other wild species suffer heavy losses from disease. By J. E. Shillinger, Senior Veterinarian, in Charge Division of Disease Control. Pp. 232-234.
- Predator-trap device safeguards species that are harmless. By A. M. Day, Biologist, in Charge Predatory Animal and Rodent Control, Division of Game Management. Pp. 299-300.
- Rabbit-raising profits materially influenced by age at marketing. By F. G. Ashbrook, Principal Biologist, in Charge, and C. E. Kellogg, Biologist, Division of Fur Resources. Pp. 305-306.
- Rat baits canned to aid cooperative antirrat campaigns. By James Silver, Regional Director, Division of Game Management. Pp. 308-310.

Restocking of marshes with hand-reared mallards not proved practicable. By F. C. Lincoln, Biologist, Division of Biological Investigations. Pp. 310-313.

Wild-life factors important in efforts to improve forests. By W. B. Bell, Principal Biologist, in Charge Division of Biological Investigations. Pp. 373-376.

Hunters' licenses issued by States, with money returns, for the seasons 1931 and 1932. Compiled by F. P. Callaghan, in Charge Enforcement, Division of Game Management. Table 514, p. 743.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Ashbrook, F. G. Conservation and the molt cycle. Jour. Tech. Assoc. Fur Indus. 5 (2): 39-47. June 1934.
- Cottam, Clarence. Possible extension of regular winter range of the great black-backed gull. Auk 51 (3): 376. July 1934.
- Past periods of eelgrass scarcity. Rhodora 36 (427): 261-264. July 1934.
- Gabrielson, I. N. The ancient Siskiyous. House and Garden 66 (1): 42, 43, 69, 70. July 1934.
- Goldman, E. A. Forestry in relation to game conservation. Idaho Forester 16: 19-20 48-50. 1934.
- Howell, A. H., and Burleigh, Thos. D. Additional notes on birds of Princess Anne County, Virginia. Auk 51 (3): 393-394. July 1934.
- Jewett, S. G. Two Oregon stragglers. Murrelet 15 (2): 51. May 1934.
- Kalmbach, E. R. Field observations in economic ornithology. Wilson Bul. 46 (2): 73-90. June 1934.
- Kelso, Leon. A new form of Glyceria grandis and a key to its allied species. Rhodora 36 (427): 264-266. July 1934.
- Knappen, Phoebe. Some additional Audubon copper-plates. Auk 51 (3): 343-349. July 1934.
- Lincoln, F. C. Controlled raising of black ducks. Amer. Game 23 (3): 39, 45, 46, illus. May/June 1934.
- Where do they come from--where do they go? Natl. Waltonian 1 (13): 3-5, 9, 14, illus. July 1934.
- McAttee, W. L. Russian economic ornithology. [Review of recent papers.] Auk 51 (3): 416-417. July 1934.
- Nelson, E. W. (deceased), and Goldman, E. A. Revision of the pocket gophers of the genus Cratogeomys. Biol. Soc. Wash. Proc. 47: 135-154. June 13, 1934.
- Goldman, E. A. A new pocket mouse from Sonora. Jour. Wash. Acad. Sci. 24 (6): 267. June 15, 1934.
- Oderkirk, G. C. Goodbye, star boarders! How to get rid of furry guests who dine on crops and undermine good soil. Successful Farming 32 (7): 10-11, 46, illus. July 1934.
- Taylor, W. P. The need for natural areas. Ecology 15 (3): 328-329. July 1934.

BIOLOGICAL INVESTIGATIONS

Study Northern Limits of Drought as Affecting Waterfowl.--E. A. Goldman and C.M. Aldous carried on investigations of migratory-waterfowl breeding conditions, especially those affecting the ducks in Minnesota, Manitoba, and Saskatchewan, from June 4 to 30. The general route followed was from St. Paul, Minn., north to Lake Winnipeg, Lake Manitoba, and Lake Winnipegosis and thence northwest to Prince Albert National Park, returning via Regina, Saskatchewan. General travel, over 4,000 miles,

was by auto, but short side trips into marsh areas were made by boat or canoe. One of the objectives was to determine the limits of the area severely affected by drought. Local conditions were found to vary greatly from the complete drying up of breeding places in the drought area to well-watered sections in which the breeding birds tended to congregate in numbers.

Continues Waterfowl Studies in Drought Region.--Following his return to Edmonton, Alberta, from the Lake Athabaska region, Luther J. Goldman has been engaged in a study of waterfowl breeding conditions in the zone of generally favorable breeding country north of the drought area and south of the so-called bush country in the Prairie Provinces of Canada.

Studying Biological Suitability of Proposed Bird Refuges.--A. H. Howell left Washington on July 16 to assist in a study of the biological fitness of areas in Michigan that are under consideration as waterfowl refuges. Thos. D. Burleigh made a similar study of areas along the coast of North Carolina.

Resumes Elk Study on Forests.--O. J. Murie, after completing a study of waterfowl breeding conditions in British Columbia and studies of elk on the Olympic Peninsula and Snoqualmie National Forest, in the State of Washington, returned to Jackson Wyo., for a few days, then left for points in Montana to cooperate with representatives of the Forest Service in a study of elk problems in that State.

Clearing Musk-ox Pasture in Alaska.--During the past month 12 students were employed in clearing a 600-acre summer pasture for musk-oxen near College, Alaska. The work was financed by an additional allotment and will increase the available forage and facilitate protection of the animals against predators, especially bears, which have in the past occasioned some losses in the introduced herd. This provision for the animals is especially valuable, as there has been some evidence of the presence of bears and coyotes around the pasture area, and the herd has been increased by 5 young (one other died of injuries and a seventh was stillborn).

Bird Banding Growth Continues.--A year ago it was found necessary drastically to restrict the further issuance of new banding permits, for the reason that funds were not available to handle the increased volume of work. Despite this action, however, the work has continued to grow. During the fiscal year 1934 cooperators of the Bureau banded a total of 363,627 birds, an increase of more than 105,000 over the fiscal year 1933. Return records to the number of 18,321 were received, an increase of nearly 2,000 over the preceding year. The interest of American bird students in this method of study is so great that probably at least 5,000 cooperators could be enrolled, which, under adequate finances, would be the ultimate goal. It is planned to have stations at every supervised Federal refuge and to obtain additional volunteers, wherever North American species may be found in winter, not only in the United States and Canada, but also in the Caribbean countries and in Central and South America.

FOOD HABITS RESEARCH

Studies Proposed Refuges.--Mr. McAtee, since early June, has been examining proposed refuge areas in California, Nevada, and Wyoming. During part of this period he also assisted S. E. Piper and J. A. Neff in their investigation of bird depredations in California. He will continue the refuge survey work in Washington

and Oregon, and in company with Theo. H. Scheffer will make a study of waterfowl-food resources in the North Pacific States.

Returns to Denver.--E. R. Kalmbach has terminated his studies in Saskatchewan on the relationship of crows to breeding waterfowl and after conferring with W. J. Selby Walker at Calgary, concerning an outbreak of duck sickness, left on July 7 for headquarters at Denver. At Kinistino, where the major portion of the crow investigation was made, Mr. Kalmbach reported that water conditions were favorable and that the duck population there was about 80 percent normal. Crow depredations in this area were considered to be of serious proportions--33 percent of all duck nests found having been destroyed by crows.

Studies Armadillo in Relation to Game and Agriculture.--Valgene Lehmann was temporarily employed during the month of June to continue armadillo studies near Cleveland, Tex., commenced a year ago by Mr. Kalmbach. It was found that while some damage was being done to nesting quail and certain agricultural crops, the losses in most instances were small.

Examines Proposed Refuge Areas.--Neil Hotchkiss, F. M. Uhler, and A. C. Martin left Washington on July 9, 11, and 16, respectively, to examine proposed refuge areas in the Middle and South Central States. Mr. Hotchkiss will examine proposed areas in the North Central Prairie States, Mr. Uhler will cover areas in the South Central States, while Mr. Martin will make a study of proposed areas in Nebraska.

Temporary Appointments.--Wesley F. Kubichek, assistant biologist in the Biological Survey from August 16, 1919, to March 16, 1922, and later assistant professor of Zoology at Coe College, Cedar Rapids, Iowa, was employed July 12 for temporary service to assist Mr. Uhler in his waterfowl studies of the South Central States.

Louis Knowlton of Barksdale, Wis., was given temporary employment commencing July 19 to assist Mr. Hotchkiss in the refuge survey of the North Central Prairie States.

Visits Cooperative Game Projects.--Herbert L. Stoddard, serving as cooperative agent for the Bureau, inspected and recommended a plan of improvement for the quail-management project, at Crawfordsville, Ind.; the quail project, at Monticello, Ark.; the project at Roe, Ark.; the H. V. Foster Ranch project, at Bartlesville, Okla.; and the Arnett Quail and Prairie Chicken Management Project, at Arnett, Okla. Much progress was reported on each of these projects. The Arnett project, one of the most important demonstrational and experimental projects undertaken, has been dropped from State support but will probably be continued under private cooperative funds.

FUR RESOURCES

Visit Blackwater Refuge.--Mr. Ashbrook and C. E. Kellogg visited the fur station on the Blackwater Migratory Bird Refuge on June 27, to make further plans for completing the NIRA projects there. Peter J. Van Huizen, in charge of the refuge, will supervise the continuation of the NIRA work, which it is planned to complete by August 15.

Appointment Terminated.--The appointment of Frank R. Smith, supervisor of the fur station, Blackwater Migratory Bird Refuge, was terminated on June 30. This work was financed cooperatively by the University of Maryland, the Conservation Department of Maryland, and the Biological Survey. During the past year the Bureau has financed

the project alone, and has now found it necessary to discontinue the work on account of reduction in appropriation. Two comprehensive reports on muskrat investigations prepared by Mr. Smith are now on file in the Bureau.

Visitors to Fur Animal Experiment Station.--D. A. Spencer and Dr. H. C. McPhee, of the Bureau of Animal Industry, visited the Fur Animal Experiment Station, at Saratoga Springs, N.Y., on June 25 and 26. Mr. Spencer inspected the work in progress there, and Dr. McPhee conferred with Dr. Hanson regarding the cooperative fox-breeding experimental work being undertaken. The purpose of the experiment is to determine the genetical factors influencing silvering in foxes.

Investigates Outbreak of Disease.--On July 5, Dr. Hanson visited a fox ranch at Hudson, N.Y., to investigate an outbreak of disease there. Specimens were taken and Dr. Hanson returned to Saratoga Springs, to make further investigations regarding the trouble.

NIRA Projects at Rabbit Station Completed.--All NIRA work at the Rabbit Experiment Station, at Fontana, Calif., has been completed. This has provided the station with 192 all-metal hutches that are ideal for experimental and commercial use. Built of stock material, they can be constructed by the individual rabbit breeder. Samples are in the Washington office and the new bulletin on "Rabbit Production," which is now with the printer, will contain detailed information as to material and construction. These hutches are a valuable addition to the experimental equipment. They are easily kept in sanitary condition and are equipped with removable nest boxes and for individual feeding of grain and hay rations. The nest box is designed to prevent the young rabbits from being dragged out by the mothers at nursing time. The concave floor prevents some of the young becoming separated from the rest of the litter and thus reduces infant mortality from this cause in cold weather. The floors of the hutches are constructed of perforated sheet metal, with 5/8-inch holes and 1/4-inch bars, galvanized after perforation. This type of floor is proving satisfactory for preventing sore hocks in the rabbits. The men who have been employed on these projects were all selected from local relief lists. They have been much interested in their work, have rendered excellent service, and have expressed their appreciation of the employment thus given them by the Government.

Cloverleaf 4-H Rabbit Club Six Years Old; Is a Winner.--Six years ago the first 4-H Club to be organized in San Bernardino County was the Cloverleaf 4-H Rabbit Club of Fontana. Allan E. Suitor, employed at the rabbit station, has been leader and advisor of the club since its organization. It has been a consistent winner in the annual 4-H camps and fairs, and during the past season was awarded the silver cup for the best stunt. Mr. Suitor used some of the material that has been developed at the rabbit station in working out the educational part of the club's demonstration teams and skits.

DISEASE CONTROL

Inspects Game Farms.--Dr. Shillinger and Dr. L. C. Morley on July 18 inspected important game-breeding farms in Virginia. They found a good rate of egg production and a high percentage of fertility in the eggs. The operators appear to be well satisfied with results thus far, and only a few sporadic disease outbreaks of minor consequences have occurred.

Ticks Plentiful.--In the cooperative work on wildlife diseases carried on by the Bureau and the University of Minnesota, a great increase in the number of ticks has been noted in areas examined. Since ticks are known to be frequently identified with the spread of infectious diseases, the cooperators are apprehensive that this abundant tick population may portend the appearance of some destructive disease. Already in localized areas a diminution of grouse and rabbits has been observed by local wardens.

MIGRATORY WATERFOWL PROGRAM

Personnel Selected.--Selection of personnel is one of the first problems confronting this newly created division. There are now in the field three hydraulic-survey parties one in North Dakota, one in Minnesota, and one in the St. Louis region of the lower Mississippi.

Hydraulic Surveys Being Made.--A number of large lakes throughout the northwestern region are receiving hydraulic surveys, preliminary to restoring water over their drained basins. As soon as favorable reports are received from the hydraulic engineers, local labor, materials, and technical service will be organized and actual construction work started. The source of the available funds limits the greater part of the work at this time of the Mississippi Flyway.

Types of Refuges Planned.--Two types of refuges--breeding refuges in the Northwest and feeding and resting refuges at strategic points on the migration route in the Mississippi Valley--are contemplated. Where natural concentration points coincide with areas of heavy overshooting, it is planned to establish a refuge sufficiently large to save a breeding remnant of ducks in that area. The Great Lakes Flyway will receive earnest attention, especially such a great concentration point as Lake St. Clair.

Progress Made on Program.--Splendid cooperation is being given by the Divisions of Food Habits Research and Biological Investigations, which have forces in the field making duck-food surveys and checking up on the general biological fitness of areas. The Land Acquisition Division is also under a heavy load this summer owing to the extensive nature of the Mississippi Flyway Refuge program. There has just been acquired a refuge in the White River region, Arkansas, that has been badly needed for years. This is located in the midst of the green-headed mallard winter concentration area and comprises approximately 45,000 acres. It is planned eventually to establish a Federal migratory-bird refuge almost every hundred miles up the Mississippi Flyway. The successful institution and completion of this plan is one of the biggest tasks that has confronted the Survey in some time. It is believed that this can be done by March 31, 1935, which is the zero hour for the emergency funds made available for the purpose.

LAND ACQUISITION

Activities Continue in the Field.--During the last week of June, Mr. Dieffenbach was in New York and North Carolina on work in connection with the acquisition of land suitable for refuge purposes. Other members of the Washington staff have been on assignment as follows: Messrs. Hicks, Janzen, Rissman, and Sargeant are in the field examining and appraising areas for refuges under the \$1,000,000 appropriation. Paul T. Kreager has been temporarily added to the Land Acquisition force to

examine and appraise lands in Arkansas. Robert M. Rutherford has left for a field trip in North Dakota, Minnesota, Arkansas, and Tennessee, in connection with the acquisition of refuge areas. Carey H. Bennett has been called to the Washington office, following a detail to the Forest Service for the past year. Fred F. Friend, associate civil engineer, has returned from a field trip during which he inspected NIRA work in Nevada, Utah, and Nebraska. While in Utah he visited the Bear River Migratory Bird Refuge and was much interested in the large variety of birds offered sanctuary there.

Transferred to Forest Service.--John A. Murphy, for the past eight years a land-acquisition attorney on the Upper Mississippi River Wildlife and Fish Refuge, has transferred to the Forest Service and will be stationed at Atlanta, Ga.

GAME MANAGEMENT

Organization of the New Division of Game Management.--The greatly increased responsibilities and duties of the newly created Division of Game Management by consolidation of the former Division of Predatory Animal and Rodent Control and the former Division of Game and Bird Conservation, have necessitated a reorganization for closer field supervision and more effective game-management activities. The combination of these two branches into one Division under Mr. Young's leadership will make it possible for the large staff of field workers in the former Predatory Animal and Rodent Control Division to become much more useful in game-management work. The creation of new regions will make it possible to extend the organized operations in mammal control and game protection and general wildlife management. Moreover, such coordination of effort should produce better results at less cost to the public than has heretofore been possible.

Four Sections Established.--In the new set-up, four sections will have care of the four distinct branches of the divisional operations. W. E. Crouch, of the old Division of Predatory Animal and Rodent Control, whose new title is "In Charge Game Agents and Refuges, Division of Game Management", will head the section dealing with the activities of law enforcement officials and supervisors of game preserves and bird refuges. Albert M. Day, also of the old Predatory Animal and Rodent Control Division, whose new title is "In Charge Predatory Animal and Rodent Control, Division of Game Management", will head the section on the control of injurious mammals. F. P. Callaghan, of the old Division of Game and Bird Conservation, whose new title is "In Charge Enforcement, Division of Game Management", will head the section dealing with the prosecution of violators of Federal migratory-bird laws. R. W. Williams, also of the old Division of Game and Bird Conservation, whose title is "In Charge Permits, Division of Game Management", will head the section dealing with importations of foreign wild species and issuance of Federal permits under laws administered by the Bureau.

To assist Mr. Crouch in the direction of activities of field personnel in game management, Chester A. Leichhardt, formerly United States Game Protector will be transferred from Portland, Oreg., to Washington. To assist Mr. Day in predatory-animal and rodent-control work, Dorr D. Green, formerly leader of this work in the Colorado District will be transferred from Denver to Washington.

Eight Regions in Field Organization.--Eight administrative regions have been established, covering the United States, as follows, each to be in charge of a regional director, who will supervise all game management within that region:

Pacific Region (No. 1). Washington, Oregon, California, and Nevada. Headquarters, Portland, Oreg. Regional Director, Ira N. Gabrielson (formerly of Division of Predatory Animal and Rodent Control).

Mountain-Plains Region (No. 2). Montana, Idaho, Utah, Wyoming, Colorado, North Dakota, South Dakota, and Nebraska. Headquarters, Denver, Colo. Regional Director, Leo L. Laythe (formerly of Division of Predatory Animal and Rodent Control).

Southwestern Region (No. 3). Arizona, New Mexico, Kansas, Oklahoma, and Texas. Headquarters (probably), Phoenix, Ariz. Regional Director, Donald A. Gilchrist (formerly of Division of Predatory Animal and Rodent Control).

West Central Region (No. 4). Minnesota, Wisconsin, Iowa, Illinois, and Missouri. Headquarters, Winona, Minn. Regional Director, George Tonkin (formerly of Division of Game and Bird Conservation).

Southern Region (No. 5). Arkansas, Louisiana, Tennessee, Mississippi, and Alabama. Headquarters (probably), Starkville, Miss. Regional Director, Roy Moore (formerly of Division of Predatory Animal and Rodent Control).

East Central Region (No. 6). Michigan, Indiana, Ohio, and Kentucky. Headquarters (probably), Lafayette, Ind. Regional Director, Daniel H. Janzen (formerly of Division of Land Acquisition).

South Atlantic Region (No. 7). Maryland, West Virginia, Virginia, North Carolina, South Carolina, Georgia, and Florida. Headquarters, Washington, D.C. Regional Director, James Silver (formerly of Division of Predatory Animal and Rodent Control).

Northeastern Region (No. 8). The New England States, New York, Pennsylvania, New Jersey, and Delaware. Headquarters (probably), Amherst, Mass. Regional Director, Bertrand E. Smith (formerly of Division of Game and Bird Conservation).

The regional directors will be called to Washington in the near future for a conference, at which time the details of the newly created field organization will be completed, and further policies established.

Designations of Field Agents.—The title of the United States game protectors and reservation protectors will be "Game Management Agent"; that of the deputy game protectors and deputy reservation protectors will be "Deputy Agent, Division of Game Management". The title of leaders of predatory-animal and rodent control will be changed to "District Agent, Division of Game Management"; and that of assistant leaders to "Assistant District Agent, Division of Game Management".

Refuge Administration

Antelope at the Charles Sheldon Wild Life Refuge.—The present summer has been the driest experienced at the Charles Sheldon Wildlife Refuge in five years. Approximately 500 antelope are watering at Hobble Springs but they have not been greatly disturbed by the truck traffic and fence work in connection with improvements on the refuge. They have learned to retreat a short distance as traffic passes and to return almost as soon as automobiles are out of sight. The well at headquarters has failed and water is being hauled to the trough where sage hens and mule deer are accustomed to water. Sage hens have more than doubled in numbers over those on the area in 1933, each water hole having quotas ranging from a few to more than 100. These birds made their appearance on the refuge on May 7 this year, more than a month earlier than usual.

Associate Chief Visits Refuges.--During the period June 7 to July 5, Mr. Henderson visited the National Bison Range, Mont.; and the following bird refuges: Tule Lake, Calif.; Nine Pipe and Pablo, Mont.; Bear River and Locomotive Springs, Utah; and Klamath Lake, Oreg. He was accompanied to the Tule Lake Refuge, Calif., on June 20 by Regional Director Ira N. Gabrielson, of Portland, Oreg., and by Mr. and Mrs. Wm. L. Finley, naturalists, and Regional Director George Tonkin, then a U.S. game protector. Mr. and Mrs. Finley remained at the Tule Lake Refuge for several days taking pictures, and on June 22 they accompanied Mr. Gabrielson and Hugh M. Worcester, in charge of the Tule Lake Refuge, down the Klamath River toward Keno to see the large colony of gulls in that locality and to observe nesting conditions on that part of Lower Klamath Lake.

Rattlesnakes Killed on National Bison Range.--More than 200 rattlesnakes were killed at the National Bison Range, Mont., during the past spring and early summer.

Sullys Hill Game Preserve Notes.--During the fiscal year 1934, 13,893 persons with 2,475 cars visited Sullys Hill Game Preserve, N.Dak. Wesley D. Parker, in charge of the Preserve reports that as it has been raining about every third day recently the region has been converted from its desert condition, and though some plants were killed by previous lack of moisture, others have been growing well. The ground had become so dry, however, that the rains had little or no effect in raising bodies of water or making new ones. Water birds are scarce, and there will be little wheat raised and forage will be short.

Birds at Crescent Lake Migratory Bird Refuge.--Observations made on the Crescent Lake Migratory Bird Refuge, Nebr., indicate that lower water levels and constant lessening of water areas have caused a decrease of about 10 percent in nesting waterfowl. This decrease is an average for the whole refuge, however, says Wm. T. Krummes, in charge of the area, and does not indicate a general decrease over the entire area. A few lakes show a slightly increased bird population, while others have been severely depleted. Curlews, avocets, and upland plovers show an increase in numbers on the refuge of about 10 percent over last year, but willets, lesser yellowlegs, and sandpipers have decreased in the same proportion. Twenty-six pheasants were fed during the past winter at the refuge headquarters.

Working Crews Protect Nesting Pheasant and Teal.--Interesting items relative to a nesting pheasant and a blue-winged teal at Crescent Lake Refuge were noted while crews were plowing furrows for tree planting. The pheasant nest was first observed between two furrows and within 50 feet of a newly graded road. Yet, with planting and road crews working close by, this pheasant hen hatched 11 of 13 eggs. The blue-winged teal nest was located in an area to be used as a borrow pit on road work. A small area around the nest was left untouched, dirt being taken from the ground all around it. At first, the teal would leave when work started in the morning, but the men covered the nest each time the bird left. Later, this teal became accustomed to the activity and stayed on her nest while the work went on around her, finally hatching 7 of 8 eggs.

Importations and Permits

Importations from Mexico Large.--Shipments of birds and animals from Mexico during the month were unusually large. Permits were issued for 33 separate consignments, including birds of many species and also for 13 ant bears.

Many Mammals Entered.--Four large consignments totaling 938 rhesus monkeys were imported from India, one shipment alone containing 570. Twenty-five sphinx baboons and two pigmy hippopotamuses were also imported from Africa under permit issued by the Bureau.

Law Enforcement

Secretary Studies Hunting Recommendations.--The recommendations on hunting migratory game birds, which were made by the Advisory Board, Migratory Bird Treaty Act, were received by Secretary Wallace on July 14. The secretary stated in a press release on that day that he would study the Board's report at the earliest opportunity and would then make his recommendations to the President.

Hunters Must Purchase Waterfowl Stamp.--To hunt waterfowl legally this year, hunters must pay a dollar for a new Federal hunting stamp, which is nearly twice the size of a special-delivery stamp, and shows a waterfowl scene drawn for the purpose by Mr. Darling. The sale of stamps will provide funds to help conserve ducks and geese and other migratory waterfowl by the establishment of sanctuaries. Everyone over 16 years of age who hunts migratory waterfowl is required to have one of these stamps in his possession, affixed to the regular State hunting license or to a special certificate furnished by the postmaster if a hunting license is not required. The unique nature of the stamp, and the fact that it is distributed by the Post Office Department, should stimulate its sale among stamp collectors as well as sportsmen and conservationists. The money received from sales of the new stamps will be used to remedy mistakes of the past by restoring to the country's wildlife some of the land that has been wasted and by purchasing marsh lands not yet destroyed. A "catechism" of 15 questions and answers regarding the stamp--the legal requirements as to possession, places obtainable, penalties for violation of the law, disposition of proceeds, etc.--was released to the press on July 11 and has been widely published by newspapers and magazines.

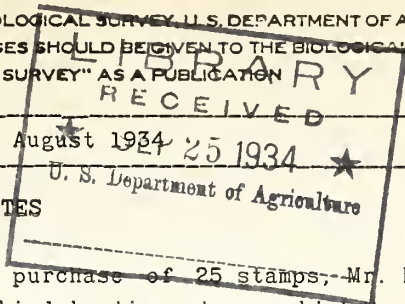
Field Agent Visits Headquarters.--U.S. Game Management Agent Bertrand E. Smith, of Portland, Maine, was in the Washington Office during the week of July 16 conferring with Survey officials, prior to undertaking his work as Regional Director for the New England States, New York, Pennsylvania, New Jersey, and Delaware.

Predator and Rodent Control

Drought Relief Funds Used in Rodent Control.--The severe drought conditions throughout the West have caused jack rabbits and other rodents to migrate from dry land areas to adjacent irrigated and other farming sections. These rodents are causing serious damage to crops that will be all too scarce this year at best. Idaho has allocated \$15,000 for rodent-control campaigns from Federal drought-relief funds assigned to the State, and drives and poisoning campaigns have been organized to take care of the situation.

THE SURVEY

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Vol. 15

Washington, D.C., August 1934

No. 8

GENERAL NOTES

Buys First Duck Stamp.--With a block purchase of 25 stamps, Mr. Darling on August 22 opened the sale of the migratory-bird hunting stamp, which he designed. A staff photo in The Washington Post on August 23 showed Mr. Darling buying the stamps from C. B. Eilenberger, Third Assistant Postmaster General, as the Washington city postmaster, William Mooney, looked on.

To Broadcast on Conservation Day Program.--Mr. Darling is scheduled to speak on "A Crucial Season for Waterfowl", during the Conservation Day radio program in the National Farm and Home Hour, September 14. The Conservation Day programs are broadcast over an NBC-WJZ network every Friday at 12.30 p.m., eastern standard time.

New Waterfowl Regulations Approved.--Duck hunters in the United States will have fewer days of shooting this year than last, but they will have a longer season and will hunt on days recommended by their own State game departments. Shooting waterfowl on baited premises may continue, but only under permit, and the baiting of mourning doves has been prohibited. Hunting previously permitted during the half hour before sunrise has been made illegal, but the former restriction on shooting before noon on the opening day of the seasons has been removed. Bag and possession limits on specially imperiled species of ducks have been reduced, but limits on other ducks and migratory game birds remain the same as last year. These are the outstanding features of the amendments to regulations under the Migratory Bird Treaty Act adopted August 15 by Secretary Wallace and approved August 20 in a proclamation by President Roosevelt.

In a press announcement of the approval of the regulations the Bureau made the following statement: Both birds and hunters have been given special consideration in the new regulations, and the sportsmen this year will have as great hunting privileges as are consistent with the precarious status of our waterfowl. Although charged with the responsibility of protecting the birds that migrate between the United States and Canada, the Biological Survey is of the opinion that the sportsmen should have something to say about matters affecting regulations governing their hunting, and the regulations this year have been drafted with this thought in mind. They were made in accordance with the recommendations of the Secretary's Advisory Board of sportsmen and conservationists, following the most extensive wild-fowl investigations ever undertaken, and they are in line with predictions made by the Bureau after the Advisory Board's meeting. These predictions aroused protests, but many of the critics from both sides after reviewing waterfowl reports later expressed approval of the proposed action, confirming our judgment that these regulations come as near as possible to combining adequate conservation with reasonable sporting privileges. We are convinced that any further concessions in either direction would have increased dissatisfaction.

Though reduced to a 30-day maximum because of a general decrease of waterfowl, the open seasons have been determined in accordance with a flexible provision permitting game departments to recommend the time and spread of shooting considered

most suitable for their own States. The flexible-season provision has also made it possible to eliminate zoning within States, with the single exception of New York, where a separate season is continued for Long Island. The new open seasons for waterfowl, Wilson's snipe or jacksnipe, and coot, are as follows:

California has chosen a season of 22 days consisting of Saturdays and Sundays during 11 weeks beginning October 20 and ending December 30, and New Mexico will have a 28-day season providing shooting on Saturdays and Sundays for 14 weeks, October 13 to January 13.

All other States have elected 30-day seasons.

Two States will have continuous seasons--Nebraska October 16 to November 14 and West Virginia November 1 to 30.

Hunters in 9 States will shoot 5 days a week for 6 weeks--Michigan, Wisconsin, Minnesota, North Dakota, and Wyoming Wednesday to Sunday October 3 to November 11; Iowa Wednesday to Sunday October 10 to November 18; and Arkansas and Mississippi Tuesday to Saturday November 6 to December 15.

In Florida, the only State choosing a 4-day-a-week season, shooting will be permitted Thursday to Sunday during 7 weeks beginning November 22 and ending January 6 and on the succeeding Thursday and Friday, January 10 and 11.

In 30 States and in Alaska the shooting will be on 3 days a week for 10 weeks--Alaska, on Saturday, Sunday, and Monday September 1 to November 5; Ohio, Indiana, Maine, and New York (except Long Island), Thursday, Friday, and Saturday October 4 to December 8; Long Island and Delaware, Thursday, Friday, and Saturday October 25 to December 29; New Hampshire, Vermont, South Dakota, and Montana, Friday, Saturday, and Sunday October 5 to December 9; Kansas, Thursday, Friday, and Saturday October 11 to December 15; Utah, Friday, Saturday, and Sunday October 12 to December 16; Massachusetts, Connecticut, New Jersey, and Pennsylvania Thursday, Friday, and Saturday October 18 to December 22; Missouri, Oregon, and Washington, Friday, Saturday, and Sunday October 19 to December 23; Oklahoma, Saturday, Sunday, and Monday October 20 to December 24; Texas, Friday, Saturday, and Sunday October 26 to December 30; Rhode Island, Kentucky, and Louisiana, Friday, Saturday, and Sunday November 2 to January 6; and Maryland, Virginia, North Carolina, South Carolina, Georgia, Alabama, and Tennessee, on Thursday, Friday, and Saturday November 8 to January 12.

In 3 States--Arizona, Idaho, and Illinois--the hunting days will be Saturdays and Sundays during 15 weeks beginning October 6 and ending January 13, and in 2 States--Colorado and Nevada--the two opening days will be Monday and Tuesday, October 1 and 2, and the season will continue on Saturdays and Sundays for 14 weeks, October 6 to January 6.

The new regulations include an amendment designed to control the principal abuses of baiting migratory waterfowl and thus to protect further the birds and, as a necessary consequence, to increase ultimately the opportunities for legitimate sport. The control provided for is a system of permits, the permits to be issued without charge by the Chief of the Biological Survey and revocable by the Secretary of

Agriculture. The permits will be issued upon the conditions that migratory waterfowl on baited premises will not be shot after 3 p.m., nor while resting on water or land, nor in violation of State law or regulations. Each baiting permittee is also to agree to keep an accurate record of the number of persons shooting on the premises and of the species and number of each species of waterfowl killed on the premises during the open season, the number of blinds employed, the number of birds killed at each blind each day, and the kinds of food employed and the intervals of feeding the birds. All this information must be reported to the Chief of the Biological Survey within one month after the close of the open season.

By a further amendment the new regulations absolutely prohibit shooting or otherwise taking mourning doves attracted or enticed to baited fields. Only a slight change was made in the open-season regulation for these birds. Hunting mourning doves will begin on September 1 in Delaware, Maryland, Virginia, Tennessee, Kentucky, Illinois, Minnesota, Nebraska, Kansas, Missouri, Arkansas, Oklahoma, New Mexico, Utah, Arizona, California, Nevada, Idaho, and Oregon. The open season in these States will close on December 15. In a northern zone of Texas also, the season will begin on September 1 but will there close on October 31. In North Carolina, South Carolina, Georgia, Alabama (except in Mobile, Baldwin, and Washington Counties) and Mississippi the Federal regulations permit hunting September 1 to 30 and November 20 to January 31. Open seasons elsewhere are as follows: In a southern zone of Texas, October 1 to November 30; Brazos County, Texas, November 15 to January 15; Mobile, Baldwin, and Washington Counties of Alabama, and Florida west of the Ochlockonee River, November 1 to January 31; Dade, Monroe, and Broward Counties of Florida, September 16 to November 15; Florida (except in Dade, Monroe, and Broward Counties and all counties west of the Ochlockonee River), November 20 to January 31; Louisiana, November 2 to January 31.

The daily bag limits on the canvasback, redhead, eider duck, greater scaup, lesser scaup, ringneck, blue-wing teal, green-wing teal, cinnamon teal, shoveler, and gadwall, have been reduced from 8 to 5, and the possession limits from 16 to 10.

Other amendments to the regulations change the seasons on rails and gallinules (except coot) in Massachusetts, Wisconsin, and New York (including Long Island) and on mourning doves in Louisiana and Texas, all in accordance with suggestions of the State game departments. In Wisconsin and New York the seasons on rails and gallinules have been made to conform with the waterfowl seasons, and in Massachusetts the season under the amended regulation will be October 4 to November 2. The new mourning-dove season in Louisiana will be November 2 to January 31, and the Texas season has been changed by providing a separate season for Brazos County--November 15 to January 15. This change was recommended by the Advisory Board, Migratory Bird Treaty Act, because of a temporary confusion in special State legislation.

National Resources Board Created.--To prepare and present to the President a program and plan of procedure dealing with the physical, social, governmental, and economic aspects of public policies for the development and use of land, water, and other national resources, and such other subjects as may from time to time be referred to it by the President, a National Resources Board was created by Executive Order No. 6777 of June 30, 1934, superseding the National Planning Board of the Federal Emergency Administration of Public Works. The new board is composed of the following members: the Secretaries of Interior (chairman), War, Agriculture,

Commerce, Labor, the Federal Emergency Relief Administrator, Frederic A. Delano, Charles E. Merriam, and Wesley C. Mitchell. Subsidiary to the board are an advisory committee and a technical committee.

South African Scientist Visits Bureau.--Austin Roberts, curator of mammals and birds of the Transvaal Museum, Pretoria, Union of South Africa, and an honorary fellow of the American Ornithologists' Union, visited the Washington offices of the Biological Survey during the week of August 13.

ADMINISTRATION

Personnel Changes.--Effective August 8 Miss Lisbeth Frigo was appointed to the emergency position of junior clerk-stenographer in this Division made vacant by the transfer of Miss Flora D. Orkin to a permanent position in the Division of Game Management. The emergency position of assistant messenger vacated by the transfer of Byron A. Hall to the regular messenger roll was filled on August 7 by the appointment of John Pierce Hewlett, Jr., of Memphis, Tenn. Another temporary assistant-messenger position was filled effective August 22, by the appointment of Abraham Heimberg, of Elizabeth, N.J.

General Orders and Administrative Memoranda Issued.--Since the recent reorganization within the Bureau "general orders" have been issued by the Chief, as follows:

- No. 1, July 2, announcing the reorganization of certain lines of work.
- No. 2, July 10, dealing with the filing of reports.
- No. 3, July 27, designating Dr. L. C. Morley project director of the Beltsville Wildlife Experiment Station.

"Administrative memoranda" have been issued by the Division of Administration as follows:

- No. 1, July 24, on administrative vise of certain telegrams and letters.
- No. 2, July 27, on addressing inter-bureau mail.
- No. 3, August 1, on mailing lists.
- No. 4, August 11, on initialing file matter and referred correspondence.

PUBLIC RELATIONS

Waterfowl Situation Explained.--Repeating the report made to the Advisory Board at its recent meeting, the Bureau on August 8 graphically presented an exposition of the waterfowl situation to a public gathering in the Department auditorium. Recently released movies--"Our Wildlife Resources" and "The Wapiti of Jackson Hole"--opened and closed the program. The meeting was attended by many who came from a distance in response to special invitations. Those present included writers, representatives of national organizations interested in waterfowl, officials of various Government departments, and individuals interested in wildlife.

Of those who attended, four wrote letters to the Bureau commenting on the meeting. All these were commendatory, one reporting that the meeting served him as the basis for an editorial, and another saying: "I was, when I came to Washington, skeptical of the Survey's recommendations on baiting and the staggered season. . . .

But I think, in view of what we were told on Wednesday, that your experiment is justified. . . ." Twenty-nine who were unable to attend responded to the invitations by writing, thus adding to the Bureau's good contacts resulting from this meeting.

Issues Regulations for Buying Reprints.--Under tentative regulations recently issued by the Director of Information, separates of articles by Bureau authors published in outside periodicals may be purchased by using the Department's printing and binding fund in accordance with the provision of the Agricultural Appropriation Act for 1935. In view of the Bureau's limited printing fund, however, it is expected that purchase of separates for free distribution will not be feasible during the current fiscal year. The tentative regulations are summarized as follows: (1) Purchases will be rigidly restricted; (2) they must be strongly recommended as in the public interest and a definite aid to authorized work; (3) they will depend upon urgency of other material and availability of funds; (4) the cost will be charged to the Bureau's printing allotment; (5) manuscripts must not have been disapproved by the Bureau or the Department; (6) separates printed must be an absolute minimum--never above 200; (7) payments will be for printing from standing type, not for composition; (8) only research separates will be purchased--not articles of popular, propagandizing, or general nature; (9) delivery will be by Office of Information to Bureau Chief, not author, after removing two file copies; (10) author's connection with Department must be shown in the separates; (11) request must be accompanied by estimate of cost and carbon copy of article--ribbon copy if dealing with work of other bureaus or with Department policy; (12) copies mailed under frank must not show "author's compliments", and must bear an official stamp (wording designated) or be an enclosure with an official letter.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Ashbrook, F. G., and Kellogg, C. E. (with Joseph Caspe, senior author). Seasonal and nutritional studies on animal peltries. Jour. Tech. Assoc. Fur Indus. 5 (2): 70-82. June 1934.

Bell, W. B. The waterfowl situation. Twentieth Amer. Game Conf. Trans., pp. 14-24, illus. July 1934.

Couch, Leo K. Freak rabbit with horny growths from Whidby Island, Washington. Murrelet 15 (2): 54. May 1934.

Gabrielson, I. N. A migration note. Murrelet 15 (2): 51. May 1934.

-----Monterey hermit thrush (Hylocichla g. selvini) from northern California. Murrelet 15 (2): 53. May 1934.

-----The little known Wallowas. House and Garden 66 (2): 38-39, 72, illus. Aug. 1934.

-----Rare and unusual western plants. Nature Mag. 24 (2): 65-67, illus. Aug. 1934.

Henderson, W. C. The wild fowl situation in North America. Minn. Conservationist, No. 14, pp. 6-8, 22, illus. July 1934.

Horn, E. E., Ward, J. C., Munch, J. C., and Garlough, F. E. The effect of thallium on plant growth. Science 80 (2068): 167-168. Aug. 17, 1934.

Jewett, S. G., and Gabrielson, I. N. Two new birds for Oregon. Murrelet 15 (2): 50-51. May 1934.

-----The season (ornithological): Portland (Oreg.) region. Bird-Lore 36 (4): 251-252. July/Aug. 1934.

Lincoln, F. C. Distribution and migration of the redhead (Nyroca americana). Twentieth Amer. Game Conf. Trans., pp. 280-287, illus. July 1934.

- McAtee, W. L. Food habits of predatory mammals. Jour. Mammal. 15 (3): 243-244. Aug. 1934.
- Murie, O. J. Unusual mountain bluebird nests. Condor 36 (4): 164-165. July/Aug. 1934.
- Murray, T. B. Economic importance of rodent control. Idaho State Hort. Assoc. Proc. 38: 59-66. 1933.
- Nelson, A. L. Notes on Wisconsin mammals. Jour. Mammal. 15 (3): 252-253. Aug. 1934.
- Two mammal records for South Carolina. Jour. Mammal. 15 (3): 253-254. Aug. 1934.
- Scheffer, Theo. H. A practicable mole fence. Northwest Gardens, p. 8, illus. June 1934.
- Hints on live trapping. Jour. Mammal. 15 (3): 197-202, illus. Aug. 1934.
- Williams, Cecil S. A simple method for sectioning mammalian hairs for identification purposes. Jour. Mammal. 15 (3): 251-252. Aug. 1934.

BIOLOGICAL INVESTIGATIONS

Addresses Waltonians.--Dr. Bell on August 4 spoke on the Conservation Program of the Biological Survey at a meeting of the Norfolk Chapter of the Izaak Walton League of America, at Virginia Beach. He reports an interesting meeting with a lively conservation and outdoor spirit manifest.

Study Prospective Waterfowl Areas.--A. H. Howell returned on August 13 from Michigan, where he had spent a month studying waterfowl conditions and surveying prospective refuge areas in both the North and South Peninsulas. He was accompanied during a part of the trip by Dr. Miles D. Pirnie, Director of the Kellogg Bird Sanctuary, who is now engaged in the Bureau's migratory waterfowl program. Thos. D. Burleigh spent several days during July in a study of the biological fitness as waterfowl refuges of several areas in North Carolina and South Carolina as a part of the extended refuge-acquisition program now under way.

Continues Canadian Investigation.--L. J. Goldman has been studying further the waterfowl conditions in the Prairie Provinces of Canada, especially on favorable areas to observe the birds' success in rearing broods. Accompanied by the game commissioner of Saskatchewan, Mr. Goldman made a canoe trip down the Saskatchewan River to study waterfowl conditions along the river and on the delta at its mouth. He also spent several days early in August studying areas in northwestern North Dakota for the purpose of selecting a large area biologically suitable for waterfowl-refuge purposes in accordance with the refuge-acquisition program.

Musk-Oxen Born.--L. J. Palmer, of the Reindeer Experiment Station, College, Alaska, reports that seven of the nine musk-ox cows at the station that had attained breeding age gave birth to calves this year. Unfortunately one calf was still-born and another was killed by being gored by one of the older animals. The remaining five calves are lively and playful and are making a fine growth. As the four cows that did not bear calves this year are now 4 years old, the age at which mating first occurs, it is anticipated that there will be a good increase in the herd next year. These are the first musk-ox calves born in Alaska probably within a century, since so far as known these animals were exterminated before the arrival of the white man in their former ranges.

In California.--Dr. Walter P. Taylor has been spending several weeks in California engaged in field work on mammals and consulting libraries and museums containing material relative to research work upon which he is engaged.

Family Transmits Migration Records for 42 Years.--On the list of migration observers appears the name of Mrs. Esther W. Cates, of McLean, Saskatchewan, who as Miss C. Esther Wemyss, of Reaburn, Manitoba, sent her first migration records to the Biological Survey in 1892. Her father, Maitland Wemyss; brothers, Norman and George C.; and a sister, Miss M. M. Wemyss, also have more or less continuously supplied migration records from the Province of Manitoba.

A 45-year Observer.--Wm. C. Colt, of Gilroy, Calif., has been sending migration records to the Bureau since 1889. His observations have been made in South Dakota, Saskatchewan, Nebraska, Washington, and California.

FOOD HABITS RESEARCH

In the West.--W. L. McAtee spent July studying bird control in California; surveying waterfowl-refuge areas in California, Wyoming, Washington, Oregon, and Montana; and assisting and directing experimental plantings of duck foods in Washington and Oregon. He also visited field men in California, Colorado, and Washington.

In Washington.--E. R. Kalmbach, of the Denver Laboratory, spent the latter part of August attending conferences and discussing western problems at Survey headquarters in Washington, D. C.

Studies Fish Eaters.--F. H. May left Denver on August 9 for northwestern Nebraska, where he will undertake a study of the relation of fish-eating birds to fish at hatcheries and in stocked streams and native waters.

Appointed.--Walter W. Bennett was given temporary appointment effective August 3 to assist A. C. Martin in the study of proposed waterfowl-refuge areas in Nebraska.

Survey Proposed Refuges.--During the latter half of July and the first half of August, F. M. Uhler and W. F. Kubichek surveyed proposed waterfowl-refuge areas in Missouri. A. C. Martin and Walter W. Bennett studied similar projects in Nebraska, while Neil Hotchkiss and Louis Knowlton surveyed waterfowl areas in North Dakota and South Dakota.

Observes Potomac Conditions.--A. L. Nelson studied waterfowl conditions at various points on the Potomac River from August 5 to 7. He reported considerable improvement over conditions of a year ago.

FUR RESOURCES

Trade Names Discussed at Conference.--Mr. Ashbrook and Chas. E. Kellogg on August 23 represented the Bureau at a conference held by NRA officials to discuss the use of trade names in the fur industry. Under the joint supervision of Deputy Administrators Harry C. Carr and Harry S. Berry, the conference included also representatives of the fur and retail trades and of the Federal Trade Commission.

Mr. Ashbrook was called upon to speak on the history of trade names and their relation to the work of the Bureau. He stated that in 1922 the Biological Survey actively cooperated with the fur trade, better business bureaus, vigilance committees, and advertising clubs to inaugurate a campaign of education regarding true names and trade names, the misnaming of furs being of an early date. He pointed out that in London opposition to the system of misnaming became so strong as to lead the London Chamber of Commerce to give notice that misleading terms would not be used and that offenders would render themselves liable to prosecution under the Merchandise Marks Act of 1887. With no similar law in the United States, the question was given earnest consideration in 1922, not only by the fur-trade associations but by many others concerned. This resulted in a call by the Federal Trade Commission of a trade practice conference for the fur industry in New York on February 3, 1928, at which 90 percent of the volume of the fur trade was represented. The various branches of the fur industry, including dyers, manufacturers, and dealers, unanimously adopted certain resolutions later approved by the Federal Trade Commission, on February 27, 1928. At the conference on August 23, Mr. Ashbrook reports, the culmination of this work was in sight, NRA officials voicing an intention to include in the retail furriers' code the same rules that were approved by the Federal Trade Commission in 1928.

Annual Fur Catch.---Each year the Division of Fur Resources compiles data obtained from State game commissions on the annual fur catch. Reports have been received thus far from all but four States. Unfortunately, very few State laws require trappers to turn in annual reports of the furs taken before being permitted to take out new licenses. With few exceptions, the States reporting show a decided decrease in the 1933 catch as compared with that of 1932, even though the prices paid for raw furs had increased slightly at the close of the 1932 season.

Muskrat Information Compiled for Louisiana.---During the early part of this month considerable time was devoted in the Washington office to compiling data on muskrats for the Department of Conservation of Louisiana. A table was prepared showing the annual catch of muskrats on areas in the United States for which reports were made as compared with the annual catch in Louisiana from 1927 to and including 1933. Other information compiled pertained to the number of muskrats taken per acre on various marsh areas, the breeding and gestation periods, the sizes of litters, ratio of sexes, and to food, diseases, and parasites.

Visits Washington Office.---Walter G. McBlain, who is employed to assist Dr. Karl B. Hanson at the Fur Animal Experiment Station, Saratoga Springs, N.Y., visited the Washington office during the second week of August. He has been connected with the Bureau for the past five years, and on account of his health he must now find employment in the South. Effort is being made to effect a satisfactory transfer.

Discuss Fur Resources of Iowa.---Dr. W. C. Boone, Chairman of the Iowa State Fish and Game Commission, recently visited this Division to discuss the fur resources of Iowa, one of the few States that requires a complete report of the furs taken annually, as being essential to the restoration of fur animals. No accurate report of the annual catch of furs throughout the United States is possible until all States record such data.

Meet with Rabbit Growers.--Geo. S. Templeton, director of the U.S. Rabbit Experiment Station, and A. E. Suitor, of the Station staff, attended a meeting of the Commercial Rabbit Growers Association at Arcadia, Calif., on August 6. Mr. Suitor discussed the Station's equipment and Mr. Templeton spoke of the problems being studied there.

Another Cup Won.--The Cloverleaf 4-H Rabbit Club, of Fontana, supervised by Mr. Suitor, recently won the silver cup awarded in a rabbit-judging contest at Redlands.

DISEASE CONTROL

Attends International Congress.--Dr. Shillinger attended the International Veterinary Congress in New York City held in conjunction with the annual meeting of the American Veterinary Medical Association, August 13 to 18. Conferences with reference to losses in wildlife from disease were held with many American members as well as with foreign delegates. Invitations to the Bureau were offered by various veterinarians at State experiment stations for cooperation in this field of investigation at their institutions. Enroute back to Washington, Dr. Shillinger visited the United States Fur Animal Experiment Station, the New York Veterinary College at Cornell University, and members of the scientific staff at Pennsylvania State College.

Small Losses From Disease on Game Farms.--Game breeders generally report a successful season throughout the country. In some places there was a low egg production early in the season, probably due to faulty feeding, but the sanitary measures developed have proved effective in controlling many of the infectious diseases and parasites.

Duck Sickness Appears in Utah.--Geo. E. Mushbach, of the Bear River (Utah) Migratory Bird Refuge, has reported a mild outbreak of duck sickness west of Salt Lake City at the mouth of the Jordan River. There were also a few dead birds found on the Bear River Marsh Refuge, but Mr. Mushbach feels hopeful that losses will be small.

MIGRATORY WATERFOWL PROGRAM

Good Progress Reported.--Encouraging progress has been made in the migratory-waterfowl program. Field forces are now, for the most part, organized and well under way with their surveys. The Middle Western States, particularly North and South Dakota, Minnesota, and Montana, because of their outstanding importance as duck-breeding areas, have been the concentration points for efforts thus far. Reconnaissance work and surveys also are being made in the Chautauqua Drainage District in the Illinois River Bottoms; the St. Clair Flats and Seney Marshes in Michigan; the Elsberry Marshes and Mingo Swamp in Missouri; Lake Malheur in Oregon; and various areas in Nebraska, Iowa, North Carolina, South Carolina, Georgia, Alabama, and Mississippi.

Makes Field Inspection.--Mr. Salyer during August inspected prospective refuge areas in the Mississippi Flyway and conferred with employees of the Bureau, local officials, and interested individuals. During part of his inspection tour he was

accompanied by S. H. McCrory, chief of the Bureau of Agricultural Engineering. During Mr. Salyer's absence the work of the Washington office is being conducted by his assistant, Raymond Soderberg, who came to the Bureau from the Secretary's Office, and Miss Winifred Baum, secretary, who had previously been employed by the President's Committee on Wildlife Restoration.

Field Force Being Organized.--For prompt and systematic realization of the migratory-waterfowl program, the Division has been rapidly mobilizing a field force of competent supervisors and assistants. Encouraging cooperation has been given both by individuals offering their services and by institutions and other agencies agreeing to make available men specially qualified to direct the work. Among those already employed are the following:

Dr. Miles D. Pirnie, director of the W. K. Kellogg Sanctuary of Michigan State College, under a 3-months leave of absence, is examining the suitability of prospective refuge sites in Michigan and Wisconsin. Similar work is being carried on in Louisiana and Mississippi by Nash Buckingham, former publisher and a prominent sportsman, who has conducted game-restoration work for the Western Cartridge Co. and the American Wild Fowls Association; in Iowa, Nebraska, and South Dakota by A. C. Camerle, on leave of absence from the More Game Birds in America Foundation; in Georgia and parts of North Carolina by O. B. Taylor, of the North Carolina Agricultural College; and in other sections of North Carolina by John H. Sutherlin, a former plantation manager, who has acquired a familiarity with territory and conditions in the South.

Engineering parties at the White River (Ark.) Refuge are being conducted by Franklin W. Bush, a sportsman who has had engineering experience with the U.S. Geological Survey, the U.S. Army, the Bureau of Public Roads, and the State of California; George E. McDaniel, formerly with the U.S. Coast and Geodetic Survey and the Texas Highway Department; and Horace A. Turner, formerly assistant city engineer of Little Rock, Ark. Similar services are being performed by John W. Gallagher, formerly city engineer of Boise City, Idaho, at Medicine Lake, Mont., and at Lake Mattamuskeet, N.C., by Robert Faucet, who has had civil-engineering experience with private firms and as assistant city engineer of Virginia, Minn. Burnie Maurek, formerly game and fish commissioner of North Dakota, is directing the projects including Medicine Lake, Mont., and Souris River, N.Dak.

Brice McBride, recently employed by Utah in the measurement and distribution of water rights on the Sevin River, is directing activities at James River, S.Dak., and Jim and Arrowood Lakes, N.Dak.

O. G. Baxter, whose experience includes work with the Bureau of Public Roads, with the Department of War in flood control, and with private firms, is supervising the work in the Chautauqua drainage district of Illinois and in the Elsberry Marshes of Missouri. He is now making a survey of the Seney Marshes in Michigan.

Four men have been detailed from the Bureau of Agricultural Engineering: Chas. W. Okey, senior engineer, has surveyed the Mingo Swamp area in Missouri and has submitted alternate plans for its restoration, and is now investigating the engineering possibilities of prospective refuge areas in the Red River region near Shreveport,

La. D. G. Miller is supervising the work at Mud Lake, Minn., and Union Slough, Iowa. L. M. Winsor is in charge of surveying parties on the Des Lacs and Souris River projects in North Dakota, and he is being assisted by Leslie M. Bowen.

At Mud Lake, Irving Quist, former county highway engineer in Minnesota, is in charge of a party of 8, and Joseph A. Wise, formerly associate professor of engineering at the University of Minnesota, is designing concrete structures. At Union Slough, the work is being conducted by Chas. M. Finley, civil engineer of Sioux City, Iowa.

Spillway construction in North Dakota and South Dakota is under the general supervision of D. W. Loucks, for the past 5 years engineer for the State Game and Fish Department of South Dakota, who is directly in charge of the work in the southern State. In North Dakota the construction is being directed by M. O. Steen, formerly associated with the State Land Commissioner and State Game and Fish Commissioner of North Dakota.

Fred W. Annala, formerly an engineer with a copper manufacturing company, will conduct hydraulic surveys in Montana.

Ray C. Gill, formerly with the South Dakota Highway Commission and later highway superintendent of Charles Mix County, is conducting survey work at Lake Andes, S. Dak.

Amos B. Emery, who has been released at Mr. Darling's request from State park emergency conservation work for the Department of the Interior, is designing headquarters sites for the new refuges to be acquired.

LAND ACQUISITION

Emergency Program Well Under Way.--During the past month considerable progress has been made in the acquisition of areas suitable for migratory-bird refuges from funds made available under the land program and the drought-relief grant. Headquarters have been established at Monot, N. Dak., with Robert M. Rutherford, associate land valuation engineer, in charge. Under his supervision the following personnel are engaged in examining, appraising, and negotiating for the purchase of lands: Albert J. Rissman in the Des Lacs area, stationed at Kenmare, N. Dak.,; Doren E. Woodward in the Arrowood and Jim Lakes area at Jamestown, N. Dak.; and Carey H. Bennett at Medicine Lake, Plentywood, Mont. Howard J. Sargeant, Howard A. Miller, and Paul T. Kreager are also engaged in acquisition work in North Dakota. Harold W. Hicks is examining, appraising, and negotiating for areas in Missouri, Illinois, and Iowa. Oswald E. Recroft, assistant cadastral engineer, who has been engaged in surveying and monumenting boundaries on the Upper Mississippi River Wildlife and Fish Refuge in Iowa and Wisconsin, is now in charge of surveying and monumenting the White River Refuge.

Inspects Mattamuskeet.--Arthur A. Riemer, land valuation engineer, has returned from an inspection of the Lake Mattamuskeet Migratory Bird Refuge in North Carolina. James W. Whithead and J. Ralph Campbell of this Division are engaged in the surveying and monumenting of this refuge.

Transferred to Division.--Mrs. Gladys Day Jackson has been transferred from the Dairy Section of the Agricultural Adjustment Administration to this Division, replacing Mrs. Marion H. Wells, who was transferred to the Bureau of Entomology.

DIVISION OF GAME MANAGEMENT

Refuge Administration

Disastrous Fire at Bison Range.--A bolt of lightning started a disastrous fire at the National Bison Range, Mont., in the early morning of August 11. High winds drove the flames across the grass and timberland, which were highly inflammable from the long-prevailing drought. After burning over about 5,300 acres and threatening destruction of the herds of big-game animals on the range, the fire was brought under control on August 12. In response to an emergency call, reserves and equipment were sent from Missoula, Mont., by the Forest Service, and 129 local men assisted the range employees. The fire hazard remains high, and fire patrols are being maintained. No accurate estimate has been made of the number of animals lost, but it will be less than at first feared. No buffalo were destroyed, as they were grazing on areas out of the path of the flames. Elk calves and mountain sheep probably suffered the heaviest losses, but it is believed these will be serious to the herds. Many posts in the division fencing were destroyed, but the most serious loss was occasioned by the destruction of vegetation and timber over the wide area covering the entire southern part of the range. It will probably be necessary to obtain emergency feed for the animals during the winter months.

Interesting Observations Made at Bear River.--A wood ibis (Mycteria americana), which made its appearance at the Bear River Migratory Bird Refuge, Utah, during the spring, has spent the summer there. It is reported as a rare visitor through that section, and this is the first positive record of its appearance on the refuge. Three records of small birds were also obtained as follows: Black-throated gray warbler (Dendroica nigrescens), northern pileolated warbler (Wilsonia pusilla pileolata), and Montana junco (Junco oreganus montanus). Great numbers of shorebirds have appeared recently at the refuge, the concentration of marbled godwits being especially great, and western sandpipers being there in large flocks. It was estimated that about the middle of July several of the flocks contained 25,000 or more sandpipers and that more than 75,000 shorebirds were present.

Woodpecker's Nest Invaded by Snake.--Early in June a crew of CCC men employed on improvement work at the Niobrara Game Preserve, Nebr., noticed a red-headed woodpecker darting at its nesting hole 7 feet above ground in a cottonwood tree 16 inches in diameter. As there were no limbs between this hole and the ground, and nothing was growing near the tree, the men investigated and found a 5-foot bull snake in the nest. When it was killed and cut open, three nearly grown woodpeckers were found in it.

Returns from Inspections.--R. O. Gustafson, administrative assistant, returned to Washington on August 6 from an extended trip to inspect wildlife refuges and the improvement work under way at various points. He visited Big Lake Bird Refuge, Ark.; Lake Malheur Bird Refuge, Oreg.; Benton Lake, Nine-Pipe, and Pablo Bird Refuges and the National Bison Range, in Montana; Charles Sheldon Wildlife

Refuge, Nev.; Bear River Migratory Bird Refuge, Utah; Crescent Lake Migratory Bird Refuge and Niobrara Game Preserve, Nebr.; and Wind Cave Game Preserve, S. Dak.

Detailed to Division of Land Acquisition.--Paul T. Kreager, U.S. Game Management Agent in charge of St. Marks Migratory Bird Refuge, Fla., has been detailed temporarily to the Land Acquisition force to examine and appraise lands. During Mr. Kreager's absence the refuge will be in charge of R. T. Cochran.

Transport Members of President's Party.--The "Wood Duck", cabin cruiser of the Upper Mississippi River Wildlife and Fish Refuge, early in August transported part of President Roosevelt's river-inspection party from Wabasha, Minn., to Winona. Plans had also been made to provide transports for the President and the entire party in other refuge boats, but late developments necessitated abandonment of the President's proposed river trip.

Hay Cutting Permitted on Upper Mississippi Refuge.--In consideration of farmers residing adjacent to the Upper Mississippi Wildlife and Fish Refuge, where severe drought had resulted in failure of hay and other forage crops, regulated hay cutting was authorized on areas of the refuge under permits issued by the Superintendent. Although more than 150 permits were issued, the demand was far in excess of what the available fields of hay could supply. The permits were issued only to owners of livestock who were in actual need of hay, and care was exercised to prevent anyone obtaining a permit who desired the hay for resale or speculative purposes. As precautionary measures against damage to bird nests, no cutting was allowed until after July 15, and the operator of a mower was instructed to equip his outfit with a flushing bar to alarm nesting birds. Permittees were required to stack the hay on refuge premises, where it was to be left until after a refuge ranger had an opportunity to measure it and determine the price and the permittee had made settlement at the rate of \$1.50 a ton. Aside from affording relief to distressed farmers, the hay cutting has resulted in certain advantages to the refuge. Fire hazard is reduced to some extent, while perpetuation of existing hay meadows through annual cutting of the grass adds a variety to game environment favorable to upland game birds.

Detailed to Acquisition Work.--Ranger and Junior Forester Howard A. Miller, with headquarters at McGregor, Iowa, has been detailed for three or four months to assist in examination of lands in Arkansas and elsewhere contemplated for purchase in the Survey's land-acquisition program.

Transferred to Prairie du Chien District.--Ranger John L. Lundberg, for the past several years stationed at Wabasha, Minn., was transferred on July 30 to Prairie du Chien, Wis. to take charge of ranger district No. 4. which extends from Lynxville, Wis., on either side of the river, to Dubuque, Iowa. Ranger district No. 1, formerly under Lundberg, will for the present at least be patrolled by a representative from the Winona office.

Low Water Continues.--With a gauge reading of minus 2.7 at Winona, Minn., on August 8, the upper Mississippi River reached its lowest point since 1864, when water-stage records were first maintained. As a consequence of this condition, not only are the smaller lakes and marshes completely dry but many of what were

formerly lakes of substantial size had little or no water in them at the middle of August. Not only is the prospect not encouraging for attracting waterfowl this fall, but there is the probability of a more serious fire hazard than was experienced last fall and winter.

Experiment with Wheatland Milo as Game-bird Food.--A small quantity of seed of wheatland milo, a dwarf species of sorghum, is being experimented with on the Upper Mississippi Refuge as a source of food for game birds. The seed, which was obtained through the Kansas State Experiment Station, was sown on 10 or 12 small tracts aggregating about 25 acres well situated throughout the length of the refuge. So far as known, the growing of this variety of sorghum has never been undertaken in this region, and the results will be awaited with interest. The plant has a large head well filled with seeds that are relished by game birds, especially quail. Part of the ripened grain will be left standing as a natural food supply, while the remainder will be harvested and the bundles retained to provide artificial food and cover during winter. The practice followed during the past few years of raising corn on selected areas as food for waterfowl and upland birds is being continued, and the prospects are good for an ample supply to meet artificial feeding needs.

Law Enforcement

Upper Mississippi Refuge Violations.--On evidence obtained by Deputy Ranger Frerichs, a resident of Houston County, Minn., was recently prosecuted in State court for violation of the State fishing regulations and fined \$10, with costs of \$6.05. For commercially taking fish contrary to State law, two residents of Al-lamakee County, Iowa, were apprehended by Ranger Lawrence while operating in Crawford County, Wis., and upon arraignment before the County Judge at Prairie du Chien each was sentenced to pay a fine of \$50 and costs of \$5.03, in default of payment of which both were sentenced to serve 60 days in the county jail. One, a minor of 17, was placed on parole and warned that any subsequent conviction for violation of the State game laws would result in his commitment to the State Industrial School until 21 years of age.

Importations and Permits

Arabian Fox Imported.--An Arabian fox (Fennecus famelicus) was imported from Bahrein Island in the Persian Gulf on August 3.

Among the more interesting birds imported during the month were an orchard finch (Phyrgilus fruticeti), a Diuca finch (D. diuca), a red-breasted blackbird (Trupialis defilippi), and a Chilean blackbird (Notiopsar curaeus) from South America.

Predator and Rodent Control

Coyote Control Saves Antelope.--When in 1915 predatory-animal control work was first established in the West in an organized way, the leaders in Nevada, Washington, and California soon became interested in the condition of the antelope herds in the territory adjoining the meeting point of these three States. About 1920 the antelope reached a very low ebb, and the leaders in the three States,

becoming alarmed, paid particular attention to the predatory-animal problem in that and succeeding years. As a result, 7,595 coyotes and bobcats have been taken on areas occupied by these herds. Hunters in Nevada working under the direction of E. R. Sans, have taken on and about the area now included in the Charles Sheldon Wildlife Refuge, 2,991 coyotes and bobcats. Coincident with this, there has been an encouraging increase in the number of antelope. At the beginning of the work there were only about 200 of these magnificent animals there, while now from 1,000 to 1,500 make their home on this range.

In 1921, Chas. G. Poole, California leader, stationed a hunter in the Mount Dome section to keep down the predatory animals preying on the antelope, which at that time numbered between 90 and 100. Since the beginning of this work, 3,078 coyotes and bobcats have been taken around this herd, which has increased to approximately 900.

On the Oregon side of the line, S. G. Jewett took up the work on Hart Mountain in 1923, and since that time his hunters have taken 1,526 coyotes and bobcats; the antelope have increased from a few hundred animals to somewhere between 3,500 and 4,000, ranging on Hart Mountain and adjoining ranges.

In addition to the protection thus afforded the antelope, there has been a surprising increase in the number of mule deer. There is no way of knowing exactly what would have happened to these, or to the bands of antelope, had this protection against the concentration of natural predatory enemies not have been given, but it is significant that, in the last four years, Ernest Greenwalt, reservation protector at the Charles Sheldon Refuge, has found some 200 carcasses of antelope that apparently had been killed by coyotes.

Recommended Control Methods for Rabies Outbreak in Maine.—Since the latter part of March, this year, 10 foxes with symptoms of rabies have been killed in an area not over 8 miles in diameter northeast of Farmington, Maine. One boy, three cows, and four dogs are known to have been bitten by the foxes. The brain of one fox sent to the United States Public Health Service for examination was reported positive for rabies. One fox attacked an automobile, biting at the tires, and the behavior of all foxes killed was typical of the furious stage of hydrophobia. Foxes, smaller predatory animals, and rodents are numerous in this area, which is largely woodland interspersed with small farms. A rapid spread of rabies among the wild animals of the State is thus threatened unless drastic measures are taken to eliminate the disease at once. The present concentration of the disease in a small area, however, seems to afford the opportunity for a quick, thorough cleanup. Following a telephone call from the Commissioner of Inland Fisheries and Game for the State of Maine, James Silver made a thorough examination of the area with Bertrand Smith. Following the study, recommendations were made to trap the infested area, and a 5-mile zone surrounding it, exhaustively, and to fumigate all burrows within the area. With these recommendations the Bureau's direct action in the problem ended, but the State game commissioner arranged for the employment of ten of the best trappers available in Maine and started work immediately.

Fills Vacancy in Colorado.—Upon the transfer to the Washington office of D. D. Green, formerly in charge of predatory-animal and rodent control in Colorado,

William E. Riter was designated to fill the vacancy. Mr. Riter came to the Bureau in 1929, having previously been employed in the Bureau of Animal Industry. He is a graduate of the Utah Agricultural College, and has served as an assistant in Idaho and Colorado. Last winter he was detailed to a special assignment in Georgia in connection with the CWA antirat campaign for typhus-fever control.

A. E. Oman, former leader of the Bureau's rodent control in North Carolina and South Carolina, retired on July 1 because of poor health, after 14 years service in Montana, Idaho, Kansas, Texas, Tennessee, North Carolina, and South Carolina. His services have been faithful and dependable, and the best wishes of his Biological Survey associates go with him.

Drought Relief Funds Available for Rodent Control.—Under the severe drought conditions throughout the West, jackrabbits and other rodents have migrated from dry land and pasture areas to the irrigated sections, where they are becoming destructive to crops and forage. Recognizing the necessity for immediate action to control these pests, the State of Idaho appropriated \$15,000 of drought-relief funds to carry on control campaigns under the supervision of the Biological Survey. The State of Wyoming has appropriated \$10,000 for similar work.

FERA Funds Allocated for Prairie-Dog Control in Montana.—An extensive prairie-dog control program has been inaugurated throughout southeastern and eastern Montana through FERA cooperation. Through allocation of \$68,000 to be expended under the supervision of the Biological Survey, calling for the treatment of about 385,000 acres of land now infested by prairie dogs, the program will require more than 150,000 pounds of bait and the labor of more than 200 men for a period of three months. Prairie dogs, it is estimated, destroy from 25 to 75 percent of the available feed in areas surrounding their colonies. Damage caused by these rodents has been especially severe this year in Montana, and this destruction, coming at a time of unprecedented drought, has left little forage for livestock. The control program will thus serve to alleviate the effects of drought. R. E. Bateman, district agent in charge of control operations in Montana, later reported that the State Commission administering FERA funds extended the predatory-animal control agreement to provide employment for about 50 hunters through August and September.

Drought Animals Used as Bait.—T. B. Murray, district agent in Idaho, reports that arrangements have been made with the Bureau of Animal Industry and the Extension Service of the University of Idaho to have animals that are slaughtered in the drought-relief program used as bait material in predatory-animal control. This procedure, when authorized, will save a considerable amount of funds in the purchase of bait material.

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GENERAL NOTES

New Division Consolidates Bureau Research.—Continuing a reorganization of the Bureau, Mr. Darling has consolidated the scientific agencies into a new Division of Wildlife Research, "to so adjust the faculties and talents existing in the Bureau that the full force of our organization may be united in its efforts toward a balanced program of wildlife conservation and public service."

This realignment follows the setting up last July of a Division of Game Management and a Division of Public Relations and the reorganization of the Division of Administration. Expectations of the game-management unit, says Mr. Darling, "have been more rapidly realized than we had reason to expect, and the results thus far accomplished by the other divisions have furnished evident justification for the changes." The Biological Survey is now organized in six divisions, as follows: Administration, Public Relations, Wildlife Research, Game Management, Land Acquisition, and Migratory Waterfowl Program, the last-named having been set up last July for the efficient expenditure of emergency funds in the wildlife-restoration program.

Dr. W. B. Bell heads the new Division of Wildlife Research, including the former Divisions of Food Habits Research, Fur Resources, and Disease Control, now designated as sections, and the former Division of Biological Investigations, which will later be organized in appropriate sections of the new unit. A regional organization is being set up for carrying on field investigations and making contacts with universities, colleges, and other scientific agencies.

Ira N. Gabrielson, now director of the Pacific Region, Division of Game Management, will at the close of the approaching hunting season be transferred to Washington as assistant administrator of the research division. W. L. McAtee, for many years in charge of the Division of Food Habits Research, has been designated technical advisor and attached to the Office of the Bureau Chief. Clarence Cottam, formerly assistant to Mr. McAtee, will head the Section of Food Habits Research in the new unit. No other changes in personnel have been announced.

Tell Conservation Commissioners of Waterfowl Crisis and Restoration Work.— Speaking on "Conserving and Restoring Our Waterfowl," Mr. Darling on September 11 outlined to the International Association of Game, Fish, and Conservation Commissioners at their annual meeting in Montreal, Canada, the Biological Survey's waterfowl program. "With the best judgment we could muster," he said, "after the most exhaustive investigation that has ever been made, the season's regulations were stretched to the limits of liberality for the sportsmen, and it is hoped that in return the hunters will be equally generous in their efforts to abide by the law." Mr. Darling pointed out, however, that "restrictive measures, short seasons, and reduced bag limits may save the remnants, but they will not restore the physical conditions necessary to bring back the ducks." He then outlined the other remedies on which, he declared, "recovery of the once prolific annual increase from the nesting areas must depend." "Restoration of nesting areas," he explained, "will be the first objective; resting stations and feeding areas along the migration lanes will

come second. . . . Surveys and plans are being completed now, in order to insure a well-considered and wisely administered program in the future. Food planting, maintenance, and custodianship are being studied."

Mr. Darling's address followed one by Mr. Henderson on "The Waterfowl Crisis." Last year, said Mr. Henderson, more birds were killed than were produced, and since then breeding conditions have shown no improvement. The drought of 1934, he said, has been the severest ever recorded by the Weather Bureau, and he told how Biological Survey naturalists had found the breeding stock in Canada this season insufficient to occupy the areas still favorable for nesting. Our waterfowl population, declared Mr. Henderson, has reached its lowest point in history, and when the reduced numbers make their way southward this fall they will find ponds and lakes dried up where formerly they could rest and feed. He predicted greater concentrations than ever on the remaining water areas and warned against a "real danger of overshooting even with the shortened season, the lowered bag limit on certain species, and the other restrictions that have been added for the protection of the birds."

Mr. Henderson summarized the results of the extensive studies made by the Biological Survey. Last fall and winter, he told, the Bureau assigned 12 experienced field men to important parts of the United States for 1 to 3 months each. Nine naturalists during the late spring and summer were sent to observe conditions on the nesting grounds. Special short investigations were made at a number of concentration points during the migration seasons. In addition members of the Bureau who are constantly in the field submitted many reports on conditions in their respective localities. Many outside sources aided the Bureau in the study. Twenty-one of the more important bird-banding stations at strategic points made detailed reports. Six hundred volunteer observers throughout the United States and Canada, 100 of whom were members of the American Ornithologists' Union, also made reports. State game commissions, the Alaska Game Commission, the Canadian Government, and Provincial Governments also cooperated.

"In the main," said Mr. Henderson, "the data from these various sources portray about the same picture--a sharp decrease in the numbers of waterfowl when the continent as a whole is considered, and when it is viewed in the light of even so short a period as 5 years. When the present population is compared with that of 25 or 30 years ago the contrast becomes astounding." The Bureau's investigators estimated that drought eliminated about 100,000 square miles of the birds' breeding areas, but almost everywhere they found that the remaining desirable breeding territory was greatly underpopulated. "Without exception," Mr. Henderson emphasized, "each naturalist who studied conditions in Canada found the breeding stock there insufficient to occupy the areas that are still favorable for nesting."

The addresses delivered by the Chief and the Associate Chief were broadcast from the Montreal meeting in the National Farm and Home Hour program for September 11. On September 10 Mr. Darling and Mr. Henderson also spoke briefly over a Canadian network, summarizing the results of the Bureau's investigations and outlining the restoration program.

Tells Radio Audience of Waterfowl Situation and Regulations.--Mr. Darling on September 14 spoke on "Duck-hunting Regulations and the Waterfowl Situation" to the radio audience of the National Farm and Home Hour. His talk, delivered in the weekly Conservation Day program, was broadcast over a coast-to-coast network. "We have been rather careless with our game, just as we have been with our beautiful rivers, our forests, and our other natural resources," Mr. Darling said, and then pointed to the work now being carried on to restore marshes and lakes as breeding grounds. The Survey's problem in making regulations he likened to that of "old man Gus Shreiner who used to run a shoe store. He wouldn't wait on the women customers. Said he never could satisfy them. They

had number 6-B feet and wanted to wear 1-A shoes. 'Dey all vant shoes dat look liddle on the outside und are beg on de inside.'" "The regulations", said the Chief, "have been carefully studied to give everyone the best possible shooting, considering the bad hatching season, the drought, and the necessity for extreme caution against overshooting," and he told the sportsmen: "They deserve your hearty cooperation."

Wildlife Discussed at New Hampshire Forestry Conference.--Mr. Henderson on September 6 discussed wildlife and forestry at a forestry-and-land-use session of the annual forestry conference held in Plymouth, N.H., by the Society for the Protection of New Hampshire Forests in cooperation with the New Hampshire Forestry Commission. W. L. McAtee and J. Paul Miller also represented the Biological Survey at the meeting, which extended over September 5 and 6. With Mr. Henderson, they attended a conference with Governor Winant and others regarding the improvement of wildlife conditions in the State and participated in excursions to observe conditions in and near the White Mountain National Forest.

Work on Model State Game Law.--Suggestions for a model State game and fish law designed to correct the present lack of uniformity were presented at the recent meeting of the International Association of Game, Fish, and Conservation Commissioners in Montreal by a special committee appointed by Guy Amsler, president of the association. Mr. Darling was a member of the committee.

Completes Extensive Field Trip.--W. L. McAtee returned September 10 from a 4-months' field trip during which he spent some time with employees of the Division of Food Habits Research in the field, investigated many present and proposed migratory wild-fowl refuge projects, studied the condition of wild-fowl food supplies in the Laguna Madre, Tex., made special investigations of the Navajo erosion control project in New Mexico and Arizona, and of the Coon Valley project in Wisconsin, and explored the possibilities of cooperation with the University of Wyoming. His last stop in the field was with J. Paul Miller doing game-management work on the Pillsbury reservation in New Hampshire. This work has progressed, says Mr. McAtee, as well as could be expected, an observation tower having been constructed, trails cut through the woods, and other steps taken toward opening up the area and giving the food plants of ruffed grouse a better chance to develop.

ADMINISTRATION

Division Reorganized.--To bring about increased efficiency in the Division of Administration as a whole and to make more effective the assistance rendered other Divisions, Mr. Dillon has made a number of changes in organization, approved by the Chief on September 21. The Division has been organized in four sections: Personnel and Pay Rolls, E. J. Thompson, in charge; Finances and Accounts, E. J. Cohnan, in charge; Purchase and Property, James L. Talbert, in charge; and Mails and Files, W. D. Hobbs, in charge. T. E. Jacoby has been named assistant head of the Division.

The Section of Personnel and Pay Rolls will include in its personnel Miss Pauline M. Brett, William H. Gammon, Mrs. Florence P. Marks, Miss Lisbeth Frigo, Mrs. Sarah E. Hill, Mrs. Rilla M. Mehlfelt, one new personnel clerk, and additional employees as the increasing volume of work justifies.

The Section of Finances and Accounts will include Miss Edith J. Smith, Miss Mamie S. Crow, Guy W. Lane, Dana P. Miller, Mrs. Jessie M. Stabler, Lee D. Sinclair, Carey D.

Cruikshank, J. E. D. Milton, Mrs. Vinnie F. DeBach, Miss Marguerite Evans, Mrs. Mary Cover, Mrs. Anna Estes, Miss Feny E. Paulson, Miss Henrietta J. Lipp, Mrs. Lucile J. Warren, Mrs. Mary P. DeKnight, and two new auditors. Miss Smith will continue to work on budget estimates and appropriation control and will assist in the preparation of letters of authorization and allotment. Miss Crow and Mr. Lane will continue to carry on the book-keeping-accounting and auditing work, respectively.

The Section of Purchase and Property will include the property unit with its present personnel, and Miss Louise Van Osdel has also been assigned to this Section.

The Section of Mails and Files has not been changed, but a study is under way and reassignments of work within the section will be made later.

Miss Johanna Corsack has been assigned as clerk and stenographer to the head of the Division and Miss Edna Huff in the same capacity to the assistant head.

General Order Issued.--The following general order (see p. 105 of this issue of THE SURVEY) has been issued by the Chief:

No. 4, September 22, Reorganization of the Bureau's research work.

Administrative Memos to Field Offices Listed.--For convenient reference and to assist field leaders in maintaining complete sets of copies, Division of Administration memoranda to Field Offices will hereafter bear a serial number, together with the descriptive symbol "Admin.F.O." The memoranda in this series issued since July 1 are listed below, with the numbers now assigned to the first six in the series, which were issued without numbers. Each future issue of THE SURVEY will list the additional memoranda issued.

No. 1, July 31, Gasoline requirements in Southern States.

No. 2, August 18, Gasoline contracts for second quarter for Far-western and Southwestern States.

No. 3, August 25, Lost or stolen transportation requests.

No. 4, August 29, Correction in General Memorandum Bi-358a.

No. 5, September 18, Gasoline contracts for Western and Southwestern States.

No. 6, September 20, Requirements for tires and tubes for the third quarter, 1935.

No. 7, September 21, Appointments at minimum salary of classification grade.

PUBLIC RELATIONS

Bureau Exhibits Shown at Eastern States Exposition.--The Biological Survey cooperated with the Department's Office of Exhibits in furnishing material for exhibits at the Eastern States Exposition held at Springfield, Mass., September 16 to 22. Bureau material on display showed the type of land being acquired for waterfowl refuges, live birds, as well as mounted specimens, and running water and lakes being used in the topographic foreground to make the setting more realistic. Another exhibit contained mounted specimens of Canada geese, the backdrop portraying an early morning scene with a flight of geese in the sky leaving their night resting place for feeding grounds. Maps and informational material on the migration habits of these waterfowl were shown on panels. Other sets showed Rocky Mountain wildlife. Mounted specimens of mountain goat and whistling marmot, numerous specimens of bird life, and a set showing a cougar making a kill were included. The Bureau's material attracted a great deal of attention and stimulated many inquiries, says Lisle Morrison, who supervised the Biological Survey's exhibits. The exposition, he reports, was attended by about 200,000 people representing the entire New England region and adjacent States.

Official Publications and Releases, copies of which may be obtained by Bureau members from the Division of Public Relations, have been issued as follows:

- Waterfowl Hunters--Attention: Buy a Stamp Before You Shoot. Poster No. 53 (Bi). 1 p. Issued July 25, 1934. Received Aug. 31.
- Seasons for migratory game birds, 1934-35. Compiled by Frank G. Grimes, Junior Administrative Assistant, Division of Public Relations. Poster No. 54 (Bi). 1 p. Issued Sept. 15, 1934. Received Sept. 11.
- Migratory Bird Treaty Act regulations and text of Federal laws relating to game and birds. Service and Regulatory Announcements--B.S. 79, 21 pp. Sept. 1934, Received Sept. 18.
- Bird Banding Notes, Vol. 2, No. 11. 20 pp., Sept. 1934. Received Sept. 12.
- Conserving and restoring our waterfowl. An address by J. N. Darling, Chief, at the meeting of the International Association of Game, Fish, and Conservation Commissioners, Montreal, Canada, Sept. 11.
- The waterfowl crisis. An address by W. C. Henderson, Associate Chief, at the meeting of the International Association of Game, Fish, and Conservation Commissioners, Montreal, Canada, Sept. 11.
- Waterfowl face crisis; restoration imperative. Press statement 520-35. Released Sept. 12.
- Buy your duck stamp now, says Biological Survey. Press statement 613-35. Released Sept. 20.
- New division consolidates research of Biological Survey. Press statement 652-35. Released Sept. 25.
- Facts for fur farmers--furring pens; fall house cleaning. By Frank G. Ashbrook, Senior Biologist, in charge Section of Fur Resources, Division of Wildlife Research. Press statement 647-35. Released Sept. 30.
- New waterfowl regulations. Farm Flash--radio statement 4544. Released Sept. 6.
- Duck-hunting regulations and the waterfowl situation. Radio talk by J. N. Darling, Chief, delivered in the Conservation Day program of the National Farm and Home Hour, Sept. 14.
- National wildlife refuges at Tule Lake and Clear Lake. A radio talk prepared by George Tonkin, Regional Director, West Central Region (No. 4), and delivered by Wallace L. Kadderly in the Western Farm and Home Hour, Sept. 3.
- Money-making feeds for rabbits. A radio talk prepared by Geo. S. Templeton, Associate Biologist, director of United States Rabbit Experiment Station, delivered during the Western Farm and Home Hour by William Andrews in the role of Roving Rural Reporter, Sept. 14.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Cottam, Clarence. Adaptability in the feeding habits of the woodcock. Wilson Bull. 46: 200. Sept. 1934.
- Darling, J. N. \$8,500,000 for migratory bird restoration. Minneapolis Athletic Club Gopher 19 (12): 7-8, illus. Sept. 1934.
- Gabrielson, I. N. Providing spring color for the garden. Gard. Chron. Amer. 38: 261-262, illus. Sept. 1934.
- Lincoln, F. C. Red-breasted nuthatch at sea. Nature Mag. 24: 160, illus. Oct. 1934.
- McAtee, W. L. Sanctuary--do we mean it? Emergency Conserv. Com. Leaflet, 2 pp. Sept. 1934.
- Genera and subgenera of Eupteryginae (Homoptera; Jassidae). Zool. Soc. London Proc. 1934 (1): 93-117, illus. April 5, 1934.

- McAtee, W. L. The mutual relations of farms and birds. Ind. Audubon Soc. Yearbook, 1934: 19-26, illus. 1934.
- Neff, Johnson A. Miscellaneous notes on birds of the Sacramento Valley. Condor 36: 217-218. Sept./Oct. 1934.

WILDLIFE RESEARCH

Organization of Division.--The establishment of the Division of Wildlife Research by a general order of the Chief is reported on page 105 of this issue of THE SURVEY. The work formerly carried on by the Division of Biological Investigations will later be organized in appropriate sections, but the following notes are grouped in accordance with the practice followed in the past, notes involving members of more than one section preceding the section headings.

Conduct Study in Superior Forest.--E. A. Goldman, of the Section of Biological Investigations, and C. M. Aldous and C. C. Sperry, of the Section of Food Habits Research, recently made an investigation of the Superior National Forest, Minnesota, undertaken at the request of the Forest Service. They studied conditions affecting game and fur animals and other wildlife and made recommendations for a wildlife-management program on the forest.

Biological Investigations

Participate in Land-Use Discussion.--Dr. W. P. Taylor, accompanied by Dr. C. T. Vorhies, of the University of Arizona, on September 12 attended a meeting of the Southwestern Conservation League at which problems regarding the relationship of wildlife to land use in the Southwest were discussed. A number of suggestions for game refuges submitted by Doctor Taylor have been included in a report by the University of Arizona on land uses in the State.

Continues Canadian Study.--L. J. Goldman has been continuing his investigation of waterfowl conditions in the Prairie Provinces of Canada. This study has included a trip down the Saskatchewan River to its great delta, which Mr. Goldman reports as being one of the best waterfowl breeding areas that he has visited. Conditions of water, food, and cover, he says, are exceptionally favorable, but the number of breeding birds is far below the capacity of the area. Mr. Goldman has also traveled across Manitoba, Saskatchewan, and Alberta, in the border of the favorable bush country, working as far north as Lac La Biche, and the vicinity of Edmonton.

Detailed to Washington.--Thomas D. Burleigh has been transferred temporarily to Washington, D.C., where he will be engaged in a study of specimens and notes assembled as a result of his 5-years' work on forest wildlife problems at the Appalachian Forest Experiment Station, with headquarters at Asheville, N. C. Mr. Burleigh will make systematic studies of the specimens collected and will study the stomach contents of animals obtained in connection with his investigations of the relationship of rodents, predators, and other species to silvicultural practices.

Food Habits Research

Addresses Woodland Owners.--J. Paul Miller on August 16 spoke on the "Relation of Fish and Game to Woodlands" at a meeting of the Woodland Owners and Lumbermen held in Durham, N.H.

Studies Raven.--S. E. Aldous left Denver, Colo., on August 19 to continue studies of the white-necked raven in Texas and New Mexico.

Inspect Mosquito Control Project.--F. M. Uhler and W. F. Kubichek, having finished a survey of waterfowl-refuge areas in Missouri, are now in Tennessee, where they have completed and reported upon an inspection of the Obion River mosquito-control project.

Inspect Areas for Restoration.--Neil Hotchkiss and Louis Knowlton have finished their lake-survey work in connection with the waterfowl-restoration program in Minnesota and are now in South Dakota. A. C. Martin and W. W. Bennett, also employed in examining prospective refuge areas, are continuing their work in Nebraska.

Tabulate Data on Louisiana Birds.--During August and early September, workers in the Washington laboratory were engaged in tabulating food percentages of some 20 species of migratory waterfowl and shore birds for the Department of Conservation of Louisiana. Much stomach material of the blue goose was also analyzed in the laboratory.

Fur Resources

Visits Blackwater Fur Station.--On September 7, Mr. Ashbrook visited the fur station on the Blackwater Migratory Bird Refuge, Md., to confer with P. J. Van Huizen and make arrangements for employing labor to complete the building.

To Establish Exhibit at Los Angeles Fair.--Geo. S. Templeton, Director of the U. S. Rabbit Experiment Station, Fontana, Calif., supervised a rabbit-meat exhibit at the Los Angeles County Fair, held September 22 to 29. Carcasses of experimental animals fed up to 6 pounds in weight were on display, together with smaller carcasses for contrast.

Inspect Rabbit Slaughtering Plant.--Mr. Templeton and A. E. Suitor recently visited a large rabbit-killing plant in Los Angeles, Calif., and discussed with the firm the quality and weight of rabbit carcasses in demand on the Los Angeles market.

Cooperators Visit Division.--Dr. Joseph Caspe, president, and M. M. Gallop, secretary, of the Technical Association of the Fur Industry, New York City, visited the Washington offices on September 10 to discuss the Bureau's prime-fur studies of muskrats and rabbits and to examine experimental skins that had been dressed and dyed. The muskrat skins represented a complete catch at 20-day intervals over a yearly period at the Crescent Lake Migratory Bird Refuge, Nebr. The rabbit skins, taken at the U. S. Rabbit Experiment Station from animals varying in age from 56 days to 180 days, had been graded previously in the raw state by raw-fur dealers. The dressing and dyeing processes emphasize defects. The research work on the rabbit skins is expected to be of great value to the fur trade and to rabbit raisers in helping to determine why domestic rabbit skins have not been so satisfactory as Australian imported skins for various types of fur garments.

Makes Trip to Southwest Virginia.--Chas. E. Kellogg recently visited at Christiansburg, Va., one of the largest fox farms east of the Mississippi River, the animals including 250 pairs of breeding foxes and also a few minks and some black raccoons. Mr. Kellogg also conferred with Extension Service representatives at the Virginia Polytechnic Institute with reference to cooperative-marketing and rabbit-club work being done in that

State. He discussed various problems with rabbit breeders of Danville, Va., and told them something of the experimental work that is being done at the U. S. Rabbit Experiment Station.

Disease Control

Observes Wildlife Disease Conditions in Middle West.--Dr. Shillinger left Washington on September 6 for an extended trip in the Middle Western States, which included a conference with J. C. Salyer in Lansing, Mich., concerning wildlife disease outbreaks of which Mr. Salyer had learned. As extensive losses from disease had been reported on fox farms, Dr. Shillinger planned to inspect a large number of these. His itinerary included Iowa, Indiana, Illinois, Michigan, and Minnesota, and also Wyoming. He returned to Washington on September 29.

Inspect Virginia Game Farms.--Dr. Shillinger, Dr. L. C. Morley, Dr. H. C. Oberholser, and Amos B. Emery visited the Virginia State Game Farm and a quail farm near Richmond, Va., on August 25, to investigate reports of heavy losses from disease. Mr. Emery studied the various types of equipment used in the artificial propagation of game birds at these farms, in connection with plans for similar buildings for an experimental quail farm on the Beltsville (Md.) Wildlife Demonstration Area.

MIGRATORY WATERFOWL PROGRAM

Selection of Refuge Sites Nearing Completion.--The work involved in the selection of refuge sites in the emergency acquisition program is now practically completed, and the main problem at present is to improve the areas acquired so as to make them attractive to the birds as soon as possible.

Important North Dakota Areas Being Developed.--Recognizing that North Dakota contains the largest number of important waterfowl breeding areas in the United States, Mr. Salyer has concentrated the efforts of the emergency organization in developing suitable areas in this State. Projects are being carried on in the valleys of three rivers--the James, the Souris, and the Sheyenne.

LAND ACQUISITION

Acquiring Refuge with FERA Funds.--Funds made available in the land program of the Federal Emergency Relief Administration are being used in the acquisition of 45,000 acres of land and water, for which option was taken on June 29 for the establishment of the White River Migratory Bird Refuge, in Arkansas. The area will serve as a resting ground for waterfowl that spring and fall traverse the Mississippi Valley flyway, the most common of which are mallards, pintails, widgeons, and teals.

Inspects Refuge Areas.--Mr. Dieffenbach left recently to inspect the Crescent Lake Migratory Bird Refuge, Nebr., and areas in North Dakota, South Dakota, and Minnesota.

Contracts Being Received.--Contracts are being received covering purchase of areas for refuge purposes from the drought-stricken States of North Dakota, Montana, and Nebraska. Mr. Rutherford is still in charge of the operations in these States, having established headquarters at Minot, N.Dak.

Returns from Refuges.--Fred F. Friend has returned from an inspection trip of the construction work being performed at Big Lake Bird Refuge, Ark., Savannah River Wildlife Refuge, S.C., and Blackbeard Island Bird Refuge, Ga.

In Washington.--Harold W. Hicks is temporarily in Washington pending further examinations of areas for wildlife refuge purposes.

Transferred.--Miss Virginia M. Freitas has been transferred to the Division of Land Acquisition from the Agricultural Adjustment Administration. Miss Othwina M. Trageser has been transferred from the Division of Land Acquisition to the Newark office of the Alcohol Tax Division, Treasury Department.

GAME MANAGEMENT

Refuge Administration

PWA Work Improves Refuges.--The administration of a number of refuge areas has been greatly facilitated by work accomplished with PWA funds. Improvements completed are as follows: Headquarters building and observation tower at Big Lake Bird Refuge, Ark.; observation tower at Tule Lake Bird Refuge, Calif.; road, trail, and observation tower at Blackbeard Island Bird Refuge, Ga.; remodeling of administration building and wrecking of surplus buildings at Widows Island Migratory Bird Refuge, Maine; three observation towers, a telephone line, and dams for water conservation at the National Bison Range, Mont.; headquarters building, barn, well, and field cabin at Crescent Lake Migratory Bird Refuge, Nebr.; interior game fence and a game fence enclosing a pasture for antelope at Niobrara Game Preserve, Nebr.; a machine shed and 700 feet of steel piling which completed a cut-off dam to stop seepage around the lower side of the small lake within the area at Sullys Hill Game Preserve, N. Dak.; exhibition pasture, fencing, roads, trails, and a corral for capturing big-game animals at Wind Cave Game Preserve, S. Dak.; observation towers at Savannah River Migratory Bird Refuge, S. C.; roads and trails, telephone lines, storage sheds, and repairs to buildings and fences at the Elk Refuge, Wyo.; dressing and graveling of dikes and beach lines, and construction of roads at Bear River Migratory Bird Refuge, Utah.

Ponds Developed at Niobrara.--Several earth dams have been constructed under the PWA and ECW programs at Niobrara Game Preserve, Nebr., to impound water in small ponds for attracting waterfowl. Each pond is provided with an overflow for excess water. Most of the ponds now contain desirable duck-food plants, and further planting is planned.

Visitors at Sullys Hill Game Preserve.--S. H. McCrory, Chief of the Bureau of Agricultural Engineering, visited Sullys Hill Game Preserve, N. Dak., on August 6 and inspected the cut-off dam completed at this point during August, and Leo L. Laythe, Director of the Mountain-Plains Region, visited the preserve on August 7.

Inspect Swanquarter Refuge.--W. E. Crouch and Albert M. Day inspected the Swanquarter Migratory Bird Refuge, N.C., September 1 to 3. Early in September James Silver, Director of the Eastern Region, with U. S. Game Management Agent William L. Birsch, and Amos B. Emery, architect of the Bureau, also visited the Swanquarter refuge and Mattamuskeet Lake. Messrs. Silver and Emery later visited the Cape Romain, Savannah River, and Blackbeard Island refuges.

At Cape Romain.--Harold F. West has been detailed to Cape Romain Migratory Bird Refuge, S. C., to take charge of the area and supervise construction of observation towers and headquarters building.

Few, if Any, Animals Burned in Bison Range Fire.--Dr. R. S. Norton reports that as no carcasses of burned animals have been found on the National Bison Range since the recent fire, it is believed that few, if any, animals were burned. It had earlier been feared that elk and mountain sheep had suffered losses. (In the August issue of THE SURVEY the omission of the word "not" was unfortunately overlooked in proofreading the statement that should have read as follows: "Elk calves and mountain sheep probably suffered the heaviest losses but it is believed that these will not be serious to the herds.")

Upper Mississippi 9-foot Channel.--The War Department recently announced that bids would be opened in October for the construction of dams, gates, and spillways at the Winona and Trempealeau sites in connection with development of a 9-foot channel in the Upper Mississippi River. Construction of the channel by means of a series of low dams at intervals along the river will result in flooding at more or less shallow depths considerable portions of the Upper Mississippi Wildlife and Fish Refuge. Construction of locks at these places, as well as at 6 other sites, has been under way for the past several months. The War Department has announced that areas back of dams being built at Alma and Whitman will be inundated about April 1.

Upper Mississippi Refuge Violations.--Upon pleas of guilty to taking fish contrary to State law, two residents of Winona County, Minn., were recently sentenced to pay fines of \$50 each and costs of \$2.50, or in default thereof to serve 60 days in jail. One of these defendants paid the fine and costs, and the other is serving the jail sentence. The operator of a road house near Winona was found guilty in municipal court at Winona of serving game fish to patrons of the establishment and was sentenced to pay a fine of \$30 and costs of \$8.50, or in default thereof to serve 20 days in jail. This defendant, a woman, elected to serve the jail sentence. For taking fish contrary to State law a resident of LaCrosse, Wis., entered a plea of guilty in State court and was sentenced to pay a fine of \$50 and costs of \$2.50, in default of which he was sentenced to serve 30 days in the LaCrosse County jail. A resident of Trempealeau, Wis., on a plea of guilty of illegally possessing game fish, was sentenced to pay a fine of \$50 and costs of \$11.50 or in default thereof to serve 30 days in jail, and the sentence was suspended upon payment of costs, the defendant being placed on probation for six months. For taking fish contrary to State law four residents of Vernon County, Wis., were tried in county court at Viroqua, Wis., and upon conviction were each sentenced to pay a fine of \$50 and costs of \$11.50, or in default to serve 30 days in jail. The court suspended fine, costs, and jail sentences. For the illegal possession of game fish, a resident of LaCrosse County, Wis., entered a plea of guilty in county court and was sentenced to pay a fine of \$50 and costs of \$8.50. It being represented that the defendant was unable to pay the fine and costs and was receiving financial support from the county, the sentence was suspended. The evidence in all of the foregoing cases was obtained by Ranger Hall and Deputy Ranger Frerichs. One Migratory Bird Treaty Act case involving the hunting of yellowlegs, which had been pending final disposition, was terminated in Federal Court at Superior, Wis., on August 22 upon plea of guilty and the imposition of a fine of \$10,

which was remitted upon representation that the defendant was enrolled in a CCC camp and that such compensation as he received went to the support of his parents.

Law Enforcement

Urge Early Purchase of Duck Stamps.--As seasons open in many States early in October, the Bureau in a press statement released on September 20 reminded all waterfowl hunters over 16 years of age that they must carry a migratory-bird hunting stamp affixed to the State license or to a Federal certificate. Emphasizing that the money collected from the duck-stamp sale will be used by the Federal Government to increase the supply of waterfowl, the Biological Survey also urged all conservationists, including nonhunting stamp collectors, to cooperate by buying stamps.

State Cooperators Salute Bureau Agent.--Under the heading "Carlyle Carr Still Alive" the Georgia Department of Game and Fish Conservation News for September 8 says: "The popular field agent of the Bureau of Biological Survey, Carlyle Carr, who was thought to be buried under an avalanche or otherwise lost somewhere in the wilds near his California home, is still alive. Word was received from Mr. Carr a few days ago that he had been spending his leave of absence working. He was putting up an exhibit for the Department of Agriculture in Sacramento the last we heard from him--incidentally, it was the first news in two months. He says that he will be back on the job in October and we will get a lot of work done. Imagine that! Here he spends his leave of absence working for the Department of Agriculture and then talks about getting back to work. Carr and work are like birds and feathers; you can't have one without the other. Well hurry back, Mr. Carr, we have been missing you a lot. Dynamite comes in small packages, you know."

Predator and Rodent Control

Regional Headquarters Moved to Albuquerque.--For greater efficiency in organizing and correlating the work in the Southwestern Region, D. A. Gilchrist, Regional Director, has changed his headquarters to 404 Federal Building, Albuquerque, N. Mex. The new post-office address is P.O. Box 845.

Investigates Control Methods for Pine Mice.--D. A. Spencer, junior biologist and district investigator of the Control Methods Research Laboratory, Denver, Colo., has been assigned to a pine-mouse problem in Virginia to work out more definite control methods. While in Virginia Mr. Spencer will also study local rat-control problems.

FERA Predator-control Project Approved in Utah.--George E. Holman, district agent in Utah, will supervise 75 predatory-animal hunters in the State, working in cooperation with the State FERA and the county wool-growers' committees. Mr. Holman will assign several men to supervise the work by districts throughout the State.

Cooperate with Soil Erosion Service.--Roy Moore, Director of the Southern Region, has completed tentative arrangements with the Soil Erosion Service for conducting pocket-gopher control in Louisiana. The area to be treated comprises 55,000 acres, a high percentage of which is infested with pocket gophers. The Soil Erosion Service is to furnish the labor and materials.

THE SURVEY

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No. 10

GENERAL NOTES

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U. S. Department of Agriculture

Take Part in A. O. U. Meeting.--Fifteen members of the Bureau attended the fifty-second stated meeting of the American Ornithologists' Union, held at the Field Museum of Natural History in Chicago, October 23 to 25. Papers or addresses were presented by Mr. Darling, Frederick C. Lincoln, Edward A. Preble, Clarence Cottam, Edward A. Goldman, Miss Phoebe M. Knappen, and Dr. T. S. Palmer. At the opening session on Tuesday evening, October 23, Mr. Goldman gave the memorial address on Dr. Edward William Nelson, chief of the Bureau from 1916 to 1927; and Dr. Palmer on Otto Widmann. Mr. Darling spoke on "The Importance of Life-History Studies as a Basis for Conservation," on Wednesday morning, and discussed the restoration program on Thursday morning. Miss Knappen presented her paper, "Wild Birds in Hens' Clothing," on Wednesday morning, and followed it with another, "A Neglected Natural Resource," on Wednesday afternoon. A paper, "The Waterfowl Situation: A General Statement," was presented by Mr. Cottam on Thursday morning, and following this, Mr. Lincoln presented his paper, "The Four Major Waterfowl Flyways," and Mr. Preble another on "Waterfowl Breeding Grounds of Northern Canada." All officers of the organization were reelected, and four new fellows were elected. They are Frederick C. Lincoln, of the Biological Survey; Dr. S. Prentiss Baldwin, A. Van Rossem, and Dr. Francis Herrick. Among the 10 new members elected were Clarence Cottam and O. J. Murie, of the Division of Wildlife Research, and B. S. Bowdish, the Bureau's inspector of foreign birds at the port of New York. Visits by members were made to the new Zoological Gardens, through the courtesy of the Chicago Zoological Society, to the Century of Progress Exposition, and to the Indiana Sand Dunes. Several members attended a meeting of the Inland Bird Banding Association at the Chicago Academy of Sciences on Saturday, October 27. In addition to those on the program, the Bureau was represented at the meeting by Mr. Henderson, W. L. McAtee, Dr. W. B. Bell, Dr. H. C. Oberholser, A. H. Howell, Mrs. Jane S. Elliott, C. H. M. Barrett, and J. Paul Miller.

Inspects Fur Animal Station.--Mr. Henderson on September 13 inspected the U. S. Fur Animal Station at Saratoga Springs, N. Y.

Cooperator Visits.--Miss Sarah W. Partridge, of the Florida Department of Game and Fresh Water Fish, who has been closely associated with the Bureau in connection with the publication and distribution of "Florida Bird Life," by Arthur H. Howell, was recently a visitor in the Washington offices.

ADMINISTRATION

Edward J. Cohnan.--As this issue of THE SURVEY was going to press, the members of the Bureau were shocked to learn of the sudden death, during the night of November 5, of Edward J. Cohnan, for the past 13 years administrative assistant in the Division of Administration. He had been in ill health for some time. Though a native of Illinois, where he was born on March 6, 1879, Mr. Cohnan had maintained legal residence in Colorado for some years. He was a graduate of Georgetown

University, degree LL.B., and came to the Government service on July 11, 1904, his first appointment being in the United States National Museum. After service in the Treasury Department and the General Accounting Office he transferred on October 24, 1921, to the Biological Survey, succeeding H. S. Ward in charge of the Bureau's Accounting Office. Mr. Cohnan had made his home with his mother until her death one year ago, and is survived by a sister, Mrs. D. C. Strecker, of Rock Island, Ill., to whom the remains were sent for interment, following services held at Gawler's Chapel on November 7 and attended by members of the Bureau and friends in the city.

Administrative Memos Issued.--The following memoranda to field offices (in Admin. F. O. series) have been issued:

- No. 8. Memorandum to field leaders employing labor under PWA funds. (Oct. 6.)
- No. 9. Use of medical facilities prescribed by U. S. Employees' Compensation Commission. (Oct. 4.)
- No. 10. Mailing of packages between December 15 and 24, 1934. (Oct. 20.)

PUBLIC RELATIONS

Information Favoring Hawks Is Effective--The effectiveness of the Bureau's publications in encouraging the protection of beneficial birds is attested by a writer in the Topeka Daily Capital for September 23. "On a recent motor trip," says the writer, Harry L. Rhodes, "I was especially gratified in seeing so many beautiful hawks south and west of Pratt, Kans., and along the Ninnescah River. There has been considerable change of sentiment in western Kansas regarding these birds, which is largely due to reports sent out by the U. S. Department of Agriculture, presenting the truth regarding their habits. Formerly it was believed that hawks fed largely upon small birds, chickens, and wild game, and in consequence there was much prejudice against them, and nearly every farmer had his trusty shotgun ready to destroy them indiscriminately whenever opportunity offered. . . ."

Small Refuges For Waterfowl Advocated.--Praising a campaign for waterfowl sanctuaries on private lands recently inaugurated by the Mississippi State Game and Fish Commission, the Bureau on October 13 appealed in a press statement to landowners in other States to make similar efforts as part of the national program of wildlife restoration. In Mississippi, according to reports from the Director of Conservation, Hunter Kimball, game wardens are explaining to owners of small ponds and lakes the seriousness of the waterfowl shortage and urging them to make their water areas inviolate sanctuaries. In one county seven parties have already offered to provide such refuges.

Duck Supply Low, Keep Kill at Minimum, Bureau Urges.--The ducks that are now winging their way to wintering grounds are representatives of a seriously decreased waterfowl population, the Bureau said in a press statement on October 16 urging hunters to cooperate in keeping the kill to the minimum this year. With a program in full swing for the restoration of nesting grounds, the need was emphasized for conserving a breeding stock to repopulate these areas and produce birds for future years. This season, it was pointed out, is a crisis in which every effort should be made to preserve as many birds as possible.

Food Shortage Threatens Wildlife.--As winter this year looms as a serious barrier to the progress that is being made in the national program of wildlife restoration, especially as regards upland species, the Bureau on October 22, issued a press statement urging winter-feeding campaigns. It was stated that the drought

has been so severe that natural food is unusually scarce, and that this disastrous force has destroyed the crops that normally make it possible for the farmer to assist nature in caring for the wild creatures in times of stress. Town and city game associations, the Bureau suggested, can organize effective campaigns by appointing committees to raise funds, solicit labor, and obtain the cooperation of farmers, individual hunters, Boy Scouts, 4-H Clubs, women's clubs, business men's associations, newspapers, outing-goods stores, grain-elevator operators, feed-mill proprietors, rural mail carriers, railway section workers, and others. It was pointed out in the statement that in some communities schools may be able to cooperate by sponsoring winter-feeding contests, that in others such contests may appeal to the local newspapers, and may be carried on by State conservation departments and supervised by game protectors or wardens, and that in either case any winter-feeding campaign must have the cooperation of the resident farmers. When the groundwork of cooperation for the winter-feeding campaign has been completed, the Bureau suggested, copies of Miscellaneous Publication 159, "Winter Feeding of Wildlife on Northern Farms" may be distributed by the sponsoring organization to cooperating agencies and individuals as needed. With this manual of methods in hand, the workers can carry on the campaign in accordance with practices that have proved effective and economical, and if a campaign is so conducted in each community where needed the threatened disaster to wildlife will be averted.

New Bulletin Issued for Rabbit Raisers.—Based on the Bureau's findings at the United States Rabbit Experiment Station, Fontana, Calif., a new Farmers' Bulletin (No. 1730-F), Rabbit Production, by Frank G. Ashbrook and Charles E. Kellogg, sets forth the essentials of rabbit raising and explains how to apply them. The publication tells the prospective rabbit raiser how to feed and house the rabbits, describing in detail the construction of rabbitries, hutches, nest boxes, and developing pens. It recommends management practices for all phases of the breeder's work, from the care of suckling young to handling the dressed meat and fur for the market.

Official Publications and Releases, copies of which may be obtained by Bureau members from the Division of Public Relations, have been issued as follows:

- Rabbit production, by Frank G. Ashbrook, Principal Biologist, in charge, and Chas. E. Kellogg, Biologist, Section of Fur Resources, Division of Wildlife Research. Farmers' Bulletin No. 1730, 38 pp. August 1934. Received October 19.
- Game laws for the season 1934-35: A summary of Federal, State, and Provincial statutes, by H. P. Sheldon, in charge, and Frank G. Grimes, assistant, Division of Public Relations. Farmers' Bulletin No. 1742, 38 pp. October 1934. Received October 30.
- Status of waterfowl in 1934, by W. B. Bell, Principal Biologist, in charge, and E. A. Preble, Senior Biologist, Division of Wildlife Research. Miscellaneous Publication No. 210, 18 pp. October 1934. Received October 24.
- Amendment of regulations 4, 5, and 19 of the regulations respecting game animals, land fur-bearing animals, game birds, nongame birds, and nests and eggs of birds in Alaska. Alaska Game Commission Circular No. 11, Supplement 3, 2 pp. October 1934. Received October 30.
- Federal bag limits on ducks explained. Press statement 692-35. Released October 2.
- U. S. jacksnipe seasons are same as for ducks. Press statement 731-35. Released October 6.
- Hunters without duck stamps are arrested in Colorado. Press statement 743-35. Released October 8.
- Urges program of small refuges for waterfowl. Press statement 771-35. Released October 13.

Duck supply low, keep kill at minimum, urges Bureau. Press statement 787-35. Released October 16.

Food shortage threatens wildlife; feeding urged. Press statement 824-35. Released October 22.

New Bulletin issued for rabbit raisers. Press statement 836-35. Released October 24.

Federal "duck stamp." Farm Flash--radio statement 4689. Released October 19.

Wildlife protection. Farm Flash--radio statement 4722. Released October 30.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Darling, J. N. Darling depicts wild waterfowl shortage. Alabama Game and Fish News 6 (5): 4, 13, illus. Oct. 1934.

Howell, A. H. Description of a new subspecies of the Florida wood rat. Acad. Nat. Sci. Phila. Proo. 86: 403-404. Oct. 15, 1934.

Jewett, S. G. The season (ornithological): Portland (Oreg.) region. Bird-Lore 36: 315-316. Sept./Oct. 1934.

Kelso, Leon. Lid and Meidell on "The food of Norwegian grouse chicks" [by Johannes Lid and Ove Meidell, Nyt Magazin for Naturvidenskaberne, Bind 73, pp. 75-114, illus., June 27, 1933]. Auk 51: 549-550. Oct. 1934.

----- A new Stygian owl. Auk 51: 522-523. Oct. 1934.

McAtee, W. L. Concealing coloration among some desert rodents of the southwestern United States (a review). 4 pp. Privately printed, Washington, D. C. Oct. 1934.

Murie, O. J. Studies in elk management. Twentieth Amer. Game Conf. Trans.: 355-359. Jan. 1934.

Oberholser, H. C. The season (ornithological): Washington (D. C.) region. Bird-Lore 36: 243-244. July/Aug. 1934.

----- The season (ornithological): Washington (D. C.) region. Bird-Lore 36: 303-309. Sept./Oct. 1934.

WILDLIFE RESEARCH

Lay Plans for Game Management on Forests.--E. A. Goldman, C. C. Sperry, and C. M. Aldous met at Milwaukee, Wis., September 4, and after conferring with the regional forester proceeded to the Superior National Forest, Minn. They remained in the forest until September 17, investigating general conditions affecting game and fur-bearing animals, Mr. Sperry devoting his attention to wild-fowl foods. The information obtained is to be used in assisting the Forest Service in the formulation of more definite plans for the management of game and fur animals, with a view to the conservation and better utilization of these wildlife resources. The Survey men were accompanied by R. E. Trippensee, technical supervisor of fish and game, from the regional office of the Forest Service. On the evening of September 17 they attended a meeting of the local chapter of the Izaak Walton League, at Duluth, Minn., and took part in a general discussion of game conditions.

Distribution and Migration of Birds

It's an Old Timer.--A venerable Louisiana Heron--14 years old and still very much alive--has been reported to the Bureau. On August 13, 1920, E. A. McIlhenny, of Avery Island, La., attached band No. 37507 to a young bird of this species. On July 13, 1934, he caught it again at his famous heron colony.

Completes Waterfowl Study.--L. J. Goldman has completed his season's study of waterfowl conditions in Canada, and in the northwestern States, and has returned to his headquarters at Berkeley, Calif.

Food Habits Research

Observes Waterfowl Conditions on Susquehanna Flats.--Clarence Cottam spent part of October 13 and 14 inspecting waterfowl conditions and food resources in the Susquehanna Flats, Md. He reports a superabundance of excellent food and states that conditions in this regard could hardly be better. Waterfowl are now beginning to concentrate in this area, as fully 20,000 were observed. The dominant species present were widgeons and scaups, with lesser numbers of black ducks, pintails, canvasbacks, and teals. Few redheads were seen.

Eelgrass Situation Improved.--Mr. Cottam and A. L. Nelson on September 18 inspected the eelgrass beds at Long Beach and Solomons Island, Md. They report a slight improvement in eelgrass conditions over last year, but indicated that the situation still remains critical.

Returns from Field Investigation.--Neil Hotchkiss returned to official headquarters, Washington, D. C., on October 9 after spending three months investigating food resources and proposed waterfowl areas in West Virginia, North and South Dakota, Minnesota, Montana, Iowa, and Indiana. Louis Knowlton, who assisted Mr. Hotchkiss under temporary appointment during the summer, returned to his home at Barksdale, Wis., on October 6.

Inspect Proposed Refuges.--During the past month, F. M. Uhler and W. F. Kubichek have inspected proposed waterfowl refuge areas in Louisiana, Arkansas, and Tennessee, while A. C. Martin and Walter W. Bennett have inspected proposed areas in South Dakota, Nebraska, and Kansas.

Studies Food Resources in Northwest.--During the past month, Theo. H. Scheffer, of Puyallup, Wash., has made a study of food resources of proposed refuge areas in Washington and Oregon and has done some experimental planting of important introduced wild-duck foods.

Studies White-necked Raven.--S. E. Aldous returned to Denver on September 27 after devoting about 6 weeks to a field study of the white-necked raven in Texas. In the course of this work, which is a continuation of studies conducted at opportune intervals since 1931, Mr. Aldous made appraisals of damage caused by the birds, observed their beneficial activities, collected additional stomach material, and was able to learn something of the nature and extent of control operations conducted in certain localities.

Birds Use Reservoir as Resting Ground.--During September and early October, a flock of Franklin's gulls, estimated to contain 20,000 birds used Marston Lake, near Denver, Colo., the principal reservoir for Denver's water supply, as a resting ground. There was some apprehension lest this might lead to a condition of dangerous pollution. Bacteriological tests of the inflowing and outflowing water showed no added pollution by reason of the birds. Nevertheless local officials felt compelled to use a mild form of persuasion on the birds by operating a number of motor boats on the lake to improve the "psychological" condition brought about by the presence of the birds. The gulls accommodately departed, but ducks, coots, and a few other species still enjoy sanctuary on this reservoir, which is about one square mile in area.

Identifies Hairs 1,500 Years Old.--C. S. Williams recently completed the identification of some very interesting samples of mammal hairs for the Museum of Northern Arizona at Flagstaff. The material, obtained from a "Basket Maker II" burial cave in the Tsegi drainage of northeastern Arizona by the 1934 Rainbow Bridge-Monument Valley expedition, came from the clothing worn by people who lived more than fifteen hundred years ago. For the most part the hairs were in a remarkably good state of preservation and in every case were identified as those of rabbits. The hair elements differed little from those of hairs of the present-day cottontail (Sylvilagus). The source of a few bird feathers also was traced. Some proved to be those of turkey. Others were from Passeriformes, either Corvidae or Turdidae.

Fur Resources

Visit Johns Hopkins University.--Frank G. Ashbrook and Chas. E. Kellogg visited laboratories of the Carnegie Institution of Washington, at Johns Hopkins University, at Baltimore, to discuss with Dr. Karl B. Hartman the various stages of embryological development in the rabbit, about which conflicting reports have been made in connection with experimental work. Dr. Hartman gave valuable suggestions for projecting experimental work at the U. S. Rabbit Experiment Station solely for the purpose of checking on the breeding, to determine definitely whether rabbits have certain especially favorable seasons for breeding or whether they can be bred at any time. Dr. Hartman will make further examinations of rabbits to determine reasons for nonproductivity.

While in Baltimore Mr. Ashbrook and Mr. Kellogg also visited a rabbit-killing plant at the Union Stock Yards, where rabbits are received for slaughter on Wednesday of every other week. They are purchased on a dressed weight basis at 26 cents a pound. The majority come from members of the Maryland Rabbit Breeders Association, and a considerable number are received from Pennsylvania and Virginia. En route from Baltimore, Mr. Ashbrook and Mr. Kellogg also visited the Pine Grove Rabbitry, at Laurel, Md.

Rabbit Station Enters Exhibit.--Much interest was shown in the display of the U. S. Rabbit Experiment Station at the educational exhibit of the Los Angeles County Fair, held at Pomona, September 23 to 30. So large a crowd visited the exhibit day by day that it was necessary for Mr. Templeton, director of the station, to keep a man on duty at all times. In the refrigerated show case various classes of domestic rabbits used for meat--fryers, light roasts, and heavy roasts--were displayed. In the booth the new all-metal hutches were on display in conjunction with the meat exhibit. Prepared foods cooked by cooperators in Fontana constituted an interesting and popular part of the display and illustrated the attractiveness and tastiness of rabbit meat.

Animals Developing Good Fur.--Dr. Hanson reports that the fur growth on the animals at the farm this year appears to be somewhat advanced over that of last season. The quality of fur at this time and the color are very good, particularly in the martens, and it is hoped that this development will continue until pelting season so that excellent furs will be produced.

Disease Control

Studies Decreasing Game Species.--During the latter part of September, while in the North Central States, Dr. Shillinger made detailed observations on the grouse and rabbit situation with reference to periodicity in these species. Many areas report a distinct decrease in numbers. This situation is not general, but certain

more or less restricted areas appear to show a growing loss of grouse and rabbits. These areas are enlarging, and some have coalesced with adjacent areas similarly affected. Several biologists in the general region are of the opinion that the active decline in grouse and rabbits is the result of disease. Examination of specimens made in the laboratory at the University of Minnesota continues to show many affected with tularemia. The tick infestation of rabbits and grouse in the North Central States was particularly heavy during the past summer.

Losses in Deer.--Investigation as to the cause of losses in deer in western North Dakota by the local game department and the State veterinarian indicates that a group of animals accustomed to feeding in a slough in the badlands may have been affected with some toxic substance that they had ingested, though definite proof as to the cause of death has not been established. Spear grass, which is known frequently to contain large quantities of hydrocyanic acid, grows profusely in the region. The investigators also considered the possibility of toxic algae as a probable causative factor. It is evident that some highly potent lethal agent must have been responsible since seven animals, well nourished and apparently normal specimens, were found dead within a short distance of each other.

Botulism Outbreaks Mild.--During the latter part of the summer and early fall several outbreaks of botulism in waterfowl have been reported to Dr. Shillinger by Bureau representatives and conservation officials. These losses have been distributed from North Dakota to the west coast, but the outbreaks were comparatively mild, and in no instance were they extensive or of long duration.

Upland Game Birds Scarce.--In large districts of the drought-stricken area in the Northwest, pheasants and grouse are reported as scarce. Local observers believe that there was not sufficient moisture in the ground to furnish the required humidity during the incubation period. The failure of the water supply thus not only interfered with incubation but also prevented such birds as did hatch from developing. Many abandoned nests were found with unhatched eggs. After the late summer rains, however, many new nests were started, and while a fair hatch is reported, the birds are so small for this time of the year as to make it doubtful whether the poorly feathered young will survive the rigors of winter.

Resumes Research at University of Maryland.--On the basis of a cooperative agreement with the University of Maryland, pens have been built at the State Experiment Station for the confinement of test birds and animals for research on diseases affecting wildlife, and Dr. L. C. Morley has resumed this work. It is anticipated that greater progress will be possible with the combined facilities of the State Experiment Station and the newly equipped laboratories of the Bureau in the South Building.

MIGRATORY WATERFOWL PROGRAM

In the Field.--Mr. Salyer left Washington on September 28 on the second of his field inspection trips. Accompanied by Dr. Miles D. Pirnie, he inspected proposed refuge sites in Michigan and Wisconsin. Conferences with Wisconsin and Michigan State officials indicated that the Bureau will have the ready cooperation of these States in the development of the waterfowl program. Later at Minot, N. Dak., he conferred with the Bureau engineers and biologists who are completing plans for a series of major refuges in that State. Mr. Salyer planned to confer with project

directors in North Dakota, South Dakota, Montana, Minnesota, Iowa, and Nebraska, to consider construction and development plans, and to organize the work so that the development of the projects may go forward rapidly. He then intended to travel through the southern States to examine, first hand, the refuge sites recommended by the Bureau's field investigators. It is expected that he will return to Washington about the middle of November.

Appointed.—Four new men have been added to the personnel of the Migratory Waterfowl Division.

John N. Ball, whose work with the American Game Association is well known, has been appointed project coordinator in charge of all South Dakota projects, with headquarters at Pierre, S. Dak.

Gerald McKinlay has been appointed senior hydraulic engineer, with headquarters at Minot, N. Dak. He will design the dams and control works on all projects and will inspect all construction work. Mr. McKinlay previously held an important engineering post in the War Department, and has been affiliated during the past five years with the Department of Public Works of California.

T. K. Moe, recently appointed engineering aid with headquarters at Martin, S. Dak., is now working with the surveying party on the LaCreek project. Mr. Moe, a graduate in civil engineering from the South Dakota State College, has done water-conservation work for the South Dakota Department of Fish and Game and for private firms.

Edmund Doeling, has recently been appointed draftsman, with headquarters at Jamestown, N. Dak. Mr. Doeling has had considerable experience in structural designing for private construction firms.

GAME MANAGEMENT

Hold Regional Conferences.—Following their conference in Washington, each of the eight regional directors called their field personnel to the respective regional headquarters for a general discussion of the new policies of the Survey and to work out coordinated plans for the effective protection of migratory birds. Mr. Young and James Silver directed the discussions on the work of Federal game agents at a 3-day conference held at Washington, N. C., October 18 to 20, attended by F. C. Callaghan, 14 agents, deputies, and others concerned. A half-day inspection tour of Lake Mattamuskeet, Hyde County, was a feature of the meeting. The president of the local chamber of commerce welcomed the workers to the city. W. L. Birsch, game management agent for North Carolina, arranged to have the meeting held at Washington, because of its nearness to the Swanquarter Refuge and to Lake Mattamuskeet. A banquet, at which prominent citizens of the city were present, was held for the visitors on Friday night, October 19. Mr. Young and Mr. Silver explained the new Migratory Bird Hunting Stamp Act and the Migratory Bird Treaty Act to those in attendance. Details of the other conferences have not yet been reported.

Transferred.—Charles E. Gillham, formerly with the Section of Predator and Rodent Control, has been appointed U. S. game management agent, for enforcement work in the district of western Texas, New Mexico, and Arizona, with official station at Albuquerque, N. Mex. Mr. Gillham's transfer was effective October 16.

Hugh M. Worcester, refuge game management agent, in charge of the Upper Klamath Refuge in Oregon, and Clear and Tule Lake Refuges, in California, also has been transferred to the enforcement section. His district will be northern California and northern Nevada, with official station at San Francisco.

C. G. Fairchild, formerly Nevada assistant leader, Section of Predator and Rodent Control, has been transferred to the Tule Lake refuge station in California, and will have charge of Tule Lake, Clear Lake, and Upper Klamath Refuges.

Local Paper Praises Bureau Agent.--Commenting on the transfer of Mr. Worcester and praising his work in the Klamath region, the Klamath Falls (Oreg.) Herald on October 10 published the following editorial under the caption "Hugh Worcester Leaves".

"We of the Klamath country regret the loss of Hugh Worcester, even though we rejoice with him that his good work here has been recognized in a fine promotion. As game management agent for the biological survey here, Mr. Worcester has not only done a great deal of good work in the field, but he has also done much to sell game conservation to the public. Probably Mr. Worcester's most interesting activity has been salvaging work among crippled, sick, and nearly frozen birds. Thousands of birds were saved through this work, and in Mr. Worcester's 'duck hospital' on Conger Avenue many birds are recuperating today from the dreaded duck sickness. Two years ago a sudden freeze came to the Klamath country, marooning hundreds of birds on Upper Klamath and Tule Lakes. Mr. Worcester organized an extensive salvaging program, and many birds were actually chopped from the ice and rushed to the warm, pleasant springs that flow under the Conger Avenue pens. These activities gained wide press notice, through picture and story. . . ."

Change of Address.--The address of Regional Director B. E. Smith has recently been changed to South College Building, Massachusetts State College, Amherst, Mass.

Refuge Administration

Prepare to Feed Elk.--Six hundred and sixty tons of hay were harvested at the Elk Refuge this year. With the 2,140 tons left from last season, a total of 2,800 tons of refuge hay will be available for feeding the elk during the coming winter. In addition to the refuge hay, the State of Wyoming has on hand 275 tons, also 432 tons of cottonseed cake and 50 tons of corn, the bulk of the cottonseed cake and the corn being stored on the refuge. Twenty-nine acres of oats were cut and stacked at the refuge during the past summer, and the straw from the oats threshed, amounting to about 25 tons, will also be used for feeding the elk. If the winter should be a hard one and an increased number of elk come to Jackson Hole, the feed on hand will scarcely be sufficient, especially in view of the fact that the light snowfall of the past winter followed by a dry summer has resulted in a poor growth of vegetation on the winter ranges. It is estimated that there are about 20,000 elk in the Southern Yellowstone herd that winters in the Jackson Hole country, but it is difficult to determine the number of elk for which feed may have to be provided. If the winter is mild or one of not unusual severity, however, there will probably be sufficient feed on hand for caring for approximately 10,500 elk for a period of 100 days, which would be 10 days longer than the average period. Seven elk were seen on the refuge as early as September 29 this year, and a few have begun to come onto the meadows at night on the upper portion of the Izaak Walton League addition. A large bull moose was seen crossing the area near headquarters on the morning of September 10. During September, about 80 Canada geese and 700 ducks stayed on the refuge. The greater number of the ducks were mallards and teals, but pintails, gadwalls, and baldpates were also observed. The birds feed on the grain stubble during the day and stay in the large springs on the refuge at night.

Issues Order Regulating Hunting.--An order issued by Acting Secretary of Agriculture M. L. Wilson on September 1, 1934, regulates hunting on the Upper Mississippi River Wildlife and Fish Refuge during the open seasons of 1934.

Hunting Conditions Good on Mississippi Refuge.--The opening of the waterfowl hunting seasons on the Upper Mississippi Wildlife and Fish Refuge this fall was accompanied by more favorable water conditions than at any similar period since 1927. Conditions resulting from the unprecedented low stage of water that existed during the summer were considerably relieved by heavy rains in the three weeks prior to the opening of the hunting seasons. As a consequence, the river attained a fair stage, filling many lakes and marshes that had long been dry. More waterfowl, therefore, were present in the refuge at the opening of the hunting seasons than had been expected. The mallard was the prevailing species. Wood ducks were notably scarce.

Law Enforcement

Reports Excellent Compliance with Stamp Act.--Among the hundreds of hunters checked by refuge rangers on the opening days of the hunting seasons on the Upper Mississippi Refuge, only one failed to have a migratory-bird hunting stamp, reports Ray C. Steele, superintendent of the refuge.

Secure 23 Cases on Refuge.--During the first two weeks of the hunting seasons on the Upper Mississippi Refuge 23 cases involving violations were secured by refuge rangers. Of these, 8 are Federal cases and 15 have been disposed of in the State courts or are pending. Of the Federal cases, two involved hunting in closed areas, two hunting after sunset, three hunting protected species, and one hunting two days before the season opened. Of the cases pending disposition in State court, three involve hunting after sunset, one hunting a protected species, one shooting from open water, and one hunting squirrels without State license. Nine cases have been terminated in State courts as follows: Taking fish contrary to State law brought a fine of \$50 and costs of \$4.24. For hunting before sunrise, two men had their guns confiscated and were sentenced to pay fines of \$50 each and costs of \$4.24; the fine and costs imposed against one, who was only 18 years old, were suspended, but the defendant was placed on probation for one year; the fine of the other was suspended upon payment of costs, 10 days being allowed in which to pay the costs, and in default a 30-day jail sentence. On motion of the county attorney, the cases against three hunters who entered pleas of guilty to hunting pheasants during the State close season, were dismissed upon payment of costs. A Wisconsin resident hunting in Houston County, Minn., without a nonresident license paid a fine of \$10 and costs of \$4.55. For shooting from open water a defendant paid a fine of \$10 and costs of \$4. Hunting pheasants during the State close season brought a suspended sentence of a \$50 fine and costs of \$2.50. Rangers who participated and the number of cases secured by each were as follows: Deputy Frerichs, 7; Deputies Frerichs and Lee, 4; Ranger Hall and Deputy Frerichs, 1; Deputy Lee, 3; Deputies Winslow and Knopp, 3; Ranger Lawrence and Deputy Teff, 3; Ranger Hall, 1; Ranger Lundberg, 1.

In the Field.--F. P. Callaghan, during the period of September 4 to 8, conferred with the United States attorneys at Atlanta, Columbus, and Savannah, Ga. He also visited the State Game Department and, with Game Management Agent Whitehead, visited the Savannah River and Blackbeard Island Refuges, and on October 19 he attended the meeting of game-management agents at Washington, N. C., and on October 20 visited the Swanquarter refuge and Lake Mattamuskeet.

Fines Imposed for Shooting Baited Doves.--On September 18 in Federal court for the middle district of Georgia five persons charged with killing mourning doves over a baited field entered pleas of not guilty and claimed they did not know the field was baited. The court instructed the jury that a hunter on a field into which doves are coming in large numbers should ascertain what is attracting them before he starts to shoot. The jury returned a verdict of guilty, and the defendants were fined \$25 each.

Other cases involving killing doves over baited areas terminated during the month in the middle district of Georgia brought fines as follows: one of \$50, four of \$25 each, two of \$10 each, and five of \$5 each. In three other cases the defendants were placed on probation for twelve months. Nine additional cases in the same district on October 1 were closed by fines of \$25 each, and in six other cases fines of \$10 each were assessed.

The court also took occasion to remind offenders that repeated warnings had been issued regarding violations of the game laws and that if they persisted it would be necessary to impose jail sentences.

One defendant charged with killing doves over a baited field entered a plea of guilty when arraigned in Federal court for the northern district of Georgia on October 8 and was fined \$25.

Fur-law Violator Apprehended, Fined.--U. S. Game Management Agent Roahen, while traveling near Casper, Wyo., on September 11, found a fur dealer repairing his automobile. In the car were a number of beaver skins. He wired State officials to be on the lookout, and the dealer was later taken into custody, prosecuted in State court, and fined \$75; his furs, having an estimated value of \$1,500 were confiscated.

Hunters Without Duck Stamps Arrested.---Five men in Colorado--a deputy sheriff and four experienced hunters--were the first alleged violators apprehended under the Migratory Bird Hunting Stamp Act, which requires a hunter of ducks or geese to carry on his person a \$1 duck stamp. The men were also hunting during close season. In this first year in which duck stamps are required, the enforcement practice being followed is in general to caution violators, advise them of the legal provisions, and give them opportunity to purchase stamps. This policy, however, is not followed when it is clear that a hunter has willfully and knowingly violated the law.

Importations

More Canaries Coming In.---Importations of canaries, which for the past several months have been few, increased considerably during September and October. Permits were issued for the entry of approximately 28,000. Among the more interesting birds of other species imported were 4 plumed doves (Lophophaps modesta) from Japan.

Predator and Rodent Control

Control Continues in Pecos and Webb Counties, Texas.---The Commissioners Court of Pecos County, Tex., has appropriated \$4,250 for predatory-animal control to be conducted during the coming year by the Biological Survey. During the last five years, the result of the Bureau's cooperative control work in this county has been the capture of 661 bobcats and 3,998 coyotes for the protection of livestock. Under the supervision of C. R. Landon, district agent, Foreman J. E. Hill has been

in direct charge of this project. In Webb County, Tex., the Commissioners Court will pay half the expense of keeping four hunters at work. Cooperation with the Biological Survey in Webb County started September 1, 1931. During the ensuing three years 2,753 bobcats, 14,447 coyotes, 82 mountain lions, and 10 ocelots were taken. This project has been under direct charge of Assistant Agent A. B. Bynum and is also under the supervision of Mr. Landon.

Takes Unusually Large Catch.--Acting District Agent W. E. Riter reports that Hunter Glen Sutton, by the exclusive use of traps, was successful in taking 176 coyotes and bobcats in western Colorado during September, an average of nearly 6 for each day. In September 1933 Hunter Ernest Littleton took 152 coyotes and bobcats in the same territory, and in September 1932, 73 predators were taken. Others were taken during August, October, and winter months of each year, but the September catch in this territory reflects the abundance of predators. The section worked by Hunter Sutton was in Rio Blanco County, the western part of which is a wintering range for large numbers of deer, sheep, and cattle. Fall trapping operations on these ranges has prevented the destruction of large numbers of game animals and domestic livestock. Before fall operations were inaugurated in 1932, there had been heavy winter losses of game and livestock.

THE SURVEY

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Nos. 11-12

WISHING EACH MEMBER of the Bureau a Merry Christmas is too easy a job and too soon over to convey adequately my pride and happiness in the association I have had with you or to reflect the joy I wish for each one of our Survey family.

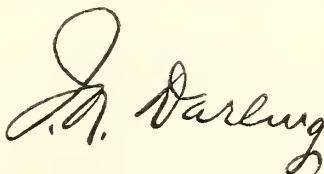
And a Happy New Year? I only wish I might share with you the hope and faith in the coming year that seems to me to be in store. A year's work well done with spirit and satisfaction in accomplishment is the best guarantee for another to follow.

No one could ask for more whole-hearted and unselfish cooperation than you have given during the trying months of reconstruction we have been through--and some of those early months were pretty well shot through with misgivings. Remember? I cannot believe that any situation we may meet in the future will prove insurmountable after those days. Our job is only begun, but the days of sinking uncertainty are past. My one hope is that I may serve you and be as worthy of your faith as you have proved worthy of my confidence and the responsibilities that you have borne.

Those things that the Bureau needs most to do seem to be exactly the things that the members of the Bureau like to do best. What more favorable circumstance could there possibly be for a merry celebration of Christmas holidays.

Greetings then to the swellest Bureau in the U.S.A., and a Happy New Year. With clear skies and a tail wind, Let's Go!

Washington, D. C.,
December 14, 1934.



GENERAL NOTES

Bureau on Community Chest Honor Roll.--The Washington office of the Bureau "went over the top" in the District of Columbia Community Chest drive by over-subscribing its quota and has been presented with a certificate showing that it has been placed on the Honor Roll of the Chest. The quota for the Washington office

was \$967, and the campaign to raise it was conducted between November 14 and 17. Pledges were received from 126 members of the Bureau, aggregating \$1,559.41, or 161.26 percent of the quota. The Bureau committee in charge of the campaign was Thos. E. Jacoby, of the Division of Administration, chairman, and the following key workers: Mrs. Helen C. Wood, of the Division of Public Relations; Mrs. Wilda C. Tucker, of the Division of Game Management; Miss Eura Nell Scruggs, of the Division of Land Acquisition; and Miss Phoebe Knappen, of the Division of Wildlife Research. The first day of the campaign was featured by an address by Mr. Darling to members of the Bureau assembled in the Department Auditorium, at which time the Department Musical and Dramatic Guild presented a playlet dramatizing the needs of the Chest.

Chief Calls for Good Business Methods in Conservation.--Naturalists, hunters, merchants, and landowners ought to get together and talk things over, for they have one great interest in common--the ducks and geese and other migratory wild fowl, said Mr. Darling in a radio talk on "Doing Something for the Ducks" broadcast on November 20 by WJSV and a network under the auspices of Science Service. It is time, he declared, to quit guessing about the birds and to take an estimate of our income and outgo and establish the business of wildlife conservation on a sound basis. In the meantime, he emphasized, we must save ducks.

"There is no juggling of magic by which we may inflate, like the currency, the actual number of ducks in existence," said Mr. Darling. "There is no factory from which we may order more when the stock runs out. There is no stock-watering bonus process similar to high finance by which we may issue gilt certificates or refund our bond issue and thereby increase our holdings and continue the fiction of riches when they are gone. All we can say, if we let our game disappear, will be to quote the Old Maestro, 'That's all there is. There isn't any more.' The object of the Biological Survey, the agency of the United States Government which is the official custodian of the wildlife of this country, is so to manage the affairs of game that we won't have to say it. Call it scientific game management if you like, but to me it is just plain horse sense that an element of American life that means so much, both economically and recreationally, to so many human beings should be put on a sane businesslike basis so that we may know at the end of a year, or ten, or twenty years, where we are coming out."

The Chief called the Bureau's investigations and its gathering of data from reports from baiting permittees and duck-stamp purchasers the "beginning of our book-keeping," which, he declared, will be continued.

Gives Radio Audience Resume of Duck Situation.--Speaking from Station WMAL under the auspices of the Rod and Stream Department of the Washington (D.C.) Evening Star on December 7, Mr. Darling summarized up-to-date waterfowl reports received by the Bureau. The situation in general, he described as decidedly bad, though reports of encouraging numbers of birds, he said, have been received from some regions. Mr. Darling also outlined the Bureau's program of restoration, and emphasizing its importance and the hope for future sport that it affords, he urged hunters and all others interested in waterfowl conservation to give the program a hearty backing. "Never before in the history of our country," he said, "have we had so much money available for wildlife restoration. However, all this work will have been done in vain if we fail to save enough of the birds to populate the nesting sanctuaries that are being provided."

Duck Plight and Remedies Outlined.--Sportsmen and game conservation officials agree in their reports that America faces the most serious waterfowl shortage in the history of the continent, Mr. Henderson told the New York Conservation Association, meeting in Jamestown, on November 17. He cited the facts assembled by trained naturalists and biologists and the reports of sportsmen who have been in the field this season, and after summing up the waterfowl conditions outlined the salient points in the conservation program being carried out by the Biological Survey.

"It obviously gives the Biological Survey no satisfaction," the Associate Chief pointed out, "to be the purveyor of bad news, and it has frequently been my unhappy lot to act as the spokesman for the field workers of the Survey in giving to the public the facts they have determined. The purpose of the Biological Survey is to give to the public the plain whole truth concerning the condition of this resource, so that all can act together to prevent a disaster that otherwise will surely befall us."

In his conclusion Mr. Henderson declared: "Now is the time for honest sportsmen to stand together, forgetting all personal inconveniences, and work wholeheartedly in support of the greatest wild-fowl restoration project even undertaken by any nation, and which now shows promise of accomplishing results of vital importance to American wildlife. By united effort we can restore our waterfowl."

Attend Forest Service Ogden Conference.--The Biological Survey was represented at a conference called by the Forest Service on grazing and wildlife, November 5 to 7, at Ogden, Utah. Mr. Darling, Dr. Bell, Mr. Young, and E. A. Goldman attended from the Washington office, and Dr. W. P. Taylor, O. J. Murie, I. N. Gabrielson, L. L. Laythe, D. A. Gilchrist, R. S. Zimmerman, G. E. Holman, and G. E. Mushbach were present from field stations. Short addresses by Mr. Darling and several other representatives of the Bureau presented viewpoints regarding policies and plans of work, the importance of game management on forests, and the need for cooperation in game management. Many reports were received from officials of the Forest Service on game conditions in the various regions, and there were lively discussions of special problems involved. Opportunity was given Bureau representatives attending this conference to visit the Bear River Migratory Bird Refuge. Following the conference, Mr. Darling, Dr. Bell, and Mr. Laythe inspected lakes in Montana where the trumpeter swan was reported as breeding, with a view to making a wildlife refuge of the area. Visits also were made to the Agricultural College, at Logan, Utah, and the Bait Mixing Station at Pocatello, Idaho. En route to Washington, Dr. Bell conferred with the president and other officials of the University of Wyoming, at Laramie, relative to cooperative work. He also conferred with Bureau representatives at the Food Habits Research Laboratory at Denver, Colo. Mr. Goldman continued his trip to California for a period of annual leave, and Mr. Young, in returning to Washington, visited points in Idaho, Oregon, California, Arizona, New Mexico, Texas, and Oklahoma, including the Wichita National Forest and Game Preserve.

Maryland Conservationists Hear Chief.--The objectives behind the Bureau's questionnaire-study of wild-fowl conditions were explained by Mr. Darling at the first annual State-wide Maryland Outdoor Life Convention, held in the Emerson Hotel, Baltimore, November 21 to 22. Delegates from all parts of Maryland, from Pennsylvania, New York, and the District of Columbia attended the meeting. Mr. Darling, in his talk, on "The Migratory Bird Law," which was given on the morning of November 22, asked for cooperation from Maryland sportsmen and conservationists in the compilation of records estimating the numbers of wild fowl in the country and the numbers killed each season. It is hoped to obtain, for the first time, an approximately complete record

of the numbers of wild fowl, Mr. Darling told his audience. The questionnaires, properly filled out by sportsmen throughout the country, also will help the Bureau in determining the effects on the wildlife by each year's hunting season, he said. "One section of the country, or one State gives no real indication of the condition of wild fowl," Mr. Darling said. "A complete picture can be obtained only through the cooperation of sportsmen and sportsmen's organizations all over the country." The convention was held under the auspices of nearly 20 city and State clubs and organizations interested in outdoor sport. Papers were presented by national and international authorities on all subjects pertaining to the outdoors, including wildlife, forestry, fishes, wild flowers, and streams.

ADMINISTRATION

Edward J. Down.--The Division of Administration has within a month suffered a second loss in its ranks, in the death on November 25 of one of its older members, Edward J. Down, in his 68th year. For the past 20 years Mr. Down had served the Bureau, first having been appointed as messenger on September 1, 1914. He was advanced on July 1, 1915, to the position of minor clerk, since which time he has been connected with the Property and Supply Section in the handling of supplies and in performing other miscellaneous clerical duties. He was employed in the U. S. National Museum for about two years prior to his coming to the Survey. Mr. Down was a native of the State of New York, where he was born on May 13, 1867. He served his country in the regular army for several years, having enlisted in the First Regiment of U.S. Infantry on December 13, 1892, and received his discharge on March 29, 1896. Funeral services were held at Hines Funeral Home in Washington, on November 27, after which the remains were forwarded to Hoosick Falls, N.Y., for interment. Mr. Down is survived by his wife and one son.

Personnel Changes Made.--On October 24, Carey G. Cruikshank was advanced to a higher position in the Auditing Section, and Mrs. Florence P. Marks, formerly of the Payroll Section, was appointed to fill the position thus vacated. Clay Gordon Bellinger was transferred from the Bureau of Entomology and Plant Quarantine, to the Auditing Section on November 1, following earlier employments in the Bureau of Plant Industry, and the Navy Department.

Walter J. Heison was appointed junior clerk in the Payroll Section, effective November 5. Prior to this appointment he had been employed by the Treasury Department and by commercial firms. He is now a student at George Washington University.

On November 14 Miss Ethel B. Kneisel assumed the duties of junior clerk in the Payroll Section. She also had been employed by the Treasury Department and by commercial firms.

A junior stenographic vacancy in the Personnel Section was filled on November 1 by the appointment of Miss Catherine A. Bolter, who had been previously employed by the Bureau of Foreign and Domestic Commerce, Department of Commerce, the Extension Service of the Department of Agriculture, and in the bookkeeping office of a Washington department store.

Miss Celia E. Levine was transferred from the Agricultural Adjustment Administration to the position of assistant clerk-stenographer in the Personnel Section on

November 26. She had formerly been employed as teacher of commercial subjects at the Chester (Pa.) High School, and as clerk in an attorney's office.

Memoranda to Field Offices Issued.--The following memoranda to field offices have been issued in the "Administrative Field Office" Series:

- No. 11. Consolidated contracts for gasoline requirements in Southern States, January 1 to March 31, 1935. (Nov. 3.)
- No. 12. Purchase of anti-freeze compound for use in Government-owned automobiles. (Nov. 16.)
- No. 13. Service-station purchases of gasoline. (Nov. 23.)
- No. 14. Suspensions and Terminations of Appointments. (Dec. 4.)
- No. 15. Avoidance of Overdrafts in Allotments. (Dec. 5.)

PUBLIC RELATIONS

Periodical Information Leaflets.--At the instance of Mr. Darling, plans are being made for the issuance monthly, or more frequently, of mimeographed information leaflets on developments in the Bureau's research and other work. These will be in a "BS" series, beginning with No. 1, and ultimately all information leaflets now in the "Bi-" series will be revised and reissued in the new series. The "Bi-" leaflets have been prepared chiefly to supplement correspondence. The new series will be sent out on mailing lists as issued to individuals who have requested that their names be kept on file for the purpose. Field offices of the Bureau will be included in the distribution. To see that others interested are supplied, it has been suggested to division chiefs that they note from their correspondence the desire of writers to have regularly such information as can be supplied. Field offices may do likewise, and if the conditions warrant, they may send to the Bureau the names and addresses of those who request such information. To facilitate determination of appropriate mailing lists, there should be stated for each name the reason entry is desired--as, "cooperator in food-habits research," "individual interested in game-bird propagation," "member of institution (giving its name) interested in bird conservation," "individual interested in fur animals," etc.

Consolidation of Job Printing Work.--Beginning the first of December, there was assigned to Frank G. Grimes, administrative assistant in this Division, all work connected with the handling of requests for job printing, including multigraphing and mimeographing of Bureau forms and administrative memoranda. Hereafter he will be contact representative on these matters with the Printing Section of the Office of Information. Explanation of procedure was made to various Bureau offices by Divisional memorandum under date of December 5.

Broadcasts on Duck-hunting Situation.--It is more important than ever before that gunners abide by the regulations that govern duck hunting, and the need for a reduced kill is so great this year that hunters who wish to see their sport last through the years might well impose additional restraints on their hunting, it was pointed out in a radio talk by Howard Zahniser broadcast by WMAL under the auspices of the Rod and Stream Department of the Washington (D.C.) Evening Star on November 9. In addition to summarizing this season's regulations and urging restraint in hunting, Mr. Zahniser made an appeal for a general interest in conservation. When we speak of

wild ducks, he pointed out, we are talking about living birds, about creatures of the earth that have become a part of our own lives, and about a natural resource that belongs to all of us and is so important that the Federal Government protects it. Waterfowl conservation, he declared, concerns every citizen, and he pointed to the Biological Survey's restoration program as "evidence that we Americans are at last realizing our responsibility to the wild creatures over which we have dominion, and that we are not going to sit idly by and watch one of our most important natural resources disappear forever."

Official Publications and Releases, copies of which may be obtained by Bureau members from the Division of Public Relations, have been issued as follows:

Officials and organizations concerned with wildlife protection, 1934, compiled by Frank G. Grimes, Administrative Assistant, Division of Public Relations, Miscellaneous Publication No. 211, 14 pp., October 1934. Received November 1.

A program of waterfowl restoration, by J. Clark Salyer II, in charge, Division of Migratory Waterfowl. Circular No. 339, 11 pp., October 1934. Received November 22.

Report of the Chief of the Bureau of Biological Survey, 1934, by J. N. Darling. Annual Report, 32 pp. Received November 28.

Abstract of fur laws, 1934-35. 31 pp. (mimeographed), October 1934. Received November 2.

Many duck species threatened by drought on breeding grounds. Press statement 875-35. Released November 2.

Duck hunting ends soon in 7 States; laws summarized in new bulletin. Press statement 928-35. Released November 7.

Expect early trial of market gunners. Press statement 927-35. Released November 7. Directory for wildlife conservationists issued. Press statement 945-35. Released November 12.

Nab 3 hunters with 86 ducks. Press statement 983-35. Released November 16.

Winter feeding planned for relief of wildlife. Press statement 993-35. Released November 17.

182,407 duck stamps sold in 18 States. Press statement 1029-35. Released November 22.

Tells how nesting areas are being restored for waterfowl. Press statement 1137-35. Released December 6.

Facts for fur farmers--experimenting with rabbits; kill and pelt inferior foxes. Press statement 802-35. Released for December numbers of fur magazines.

Big dividends. In Clip Sheet No. 854. Released November 11.

Blazing the sky trails for our waterfowl. Radio talk by Frederick C. Lincoln, in charge, Section of Distribution and Migration of Birds, Division of Wildlife Research, delivered during the Conservation Day program of the National Farm and Home Hour, November 2.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Aldous, C. M. Woods and waterfowl. Chippewa Beacon 1 (9). Sept. 30, 1934.

Darling, J. N. Gun fodder. Country Gent. 104 (12): 8-9, 60, 61, illus. by author. Dec. 1934.

Lincoln, F. C. The operation of homing instinct. Bird Banding 5: 149-155. Oct. 1934.

- Murie, O. J. Melanism in an Alaskan vole. Jour. Mammal. 15: 323. Nov. 1934.
- Oderkirk, G. C. Rat control from the bait angle. Exterminators Log 2 (10): 15. Oct. 1934.
- Sperry, C. C. Winter food habits of coyotes: A report of progress, 1933. Jour. Mammal. 15: 286-290, illus. Nov. 1934.
- Taylor, W. P. Significance of extreme or intermittent conditions in distribution of natural resources, with a restatement of Liebig's law of minimum. Ecology 15: 374-379. Oct. 1934.
- _____ Coati added to the list of United States mammals. Jour. Mammal. 15: 317-318. Nov. 1934.

WILDLIFE RESEARCH

Young Farmers Hear Dr. Oberholser.--Future Farmers of America selected one of their best friends when they chose the owl as their emblem, they were told by Dr. Harry C. Oberholser during the Future Farmers of America Program on the National Farm and Home Hour, November 12. Dr. Oberholser said the owl is one of the most beneficial of birds, its diet consisting largely of injurious rodents, grasshoppers, snails, snakes, lizards, scorpions, spiders, and insects. The owl is one of the greatest allies in the fight against destructive rodents on the farm, he declared. Only the great horned owl is destructive to poultry, he said, in exonerating other owls of the charge of preying on game birds and poultry. Dr. Oberholser discussed the interesting aspects of certain species and imitated their calls.

Musk Oxen Thriving.--L. J. Palmer, in charge of the Reindeer Experiment Station, at College, Alaska, reports that the herd of musk oxen is doing well, and that the 5 calves are in fine shape and making rapid growth. The past month they averaged a gain of 19 pounds each. One animal gained as much as 28.5 pounds in the month, or almost a pound a day.

Moose and Caribou at Red Lake.--C. M. Aldous, stationed at St. Paul, Minn., in company with Thoralf Swenson, of the Minnesota Game Commission, recently visited the Red Lake State Refuge. This was established chiefly as a means of saving the caribou still found in that region, although it is an important refuge for moose, other valuable game animals, and fur-bearers. They were fortunate in sighting one of the caribou, and from local residents and wardens obtained information indicating that there are still several in the area. The State is taking active steps to afford protection to these animals, and it is greatly to be hoped that this herd, the only known caribou remaining in the United States, may be saved and built up.

Distribution and Migration of Birds

Waterfowl Situation "Spotty".--Reports coming in from field agents and cooperating observers have continued to indicate an unsatisfactory status of migratory waterfowl. In a few areas, as the marshes of the Illinois River, the coastal marshes of Louisiana, one or two points in eastern Colorado, and the Susquehanna Flats in Maryland, the birds have appeared in about normal numbers, but otherwise reports have shown a decided scarcity of birds. Redheads are markedly scarce in all areas reported upon.

Banding Work Continues Active.--Despite the need for some curtailment of banding activities, these operations continue in a most prosperous condition. On one day (Nov. 26) letters reporting the recapture of banded birds to the number of 129 were received.

Translator's Services Requisitioned.--Many letters reporting banded birds and written in Spanish are received from Latin America, and occasionally these are in Portuguese (from Brazil); or in French (from Haiti or Martinique). The latest is a letter written in Chinese. This letter originated in Alberta and evidently is the work of a well-educated Chinese, as the ideographs are beautifully drawn. The translation was rendered by Dr. Lodge of the Smithsonian Institution.

An Unusual Owl Return.--On April 22, 1934, near Escondido, Calif., Fred N. Gallup banded a brood of long-eared owls, one of which, No. B-661987, was shot by a hunter at Corbeil, Ontario, on October 9, 1934. Because of the distance and direction traveled by this bird, this return constitutes one of the most remarkable owl recoveries thus far reported.

Check-up to be Made in January.--The week starting January 20, 1935, probably will be selected for a careful check-up of waterfowl by all field agents of the Bureau. During that period, all agents and other representatives designated for the work will be expected to examine all areas in their respective districts, keeping as careful a check as possible on the numbers of ducks of the different species. They will particularly note any fluctuations in numbers at important concentration centers, so that if there is a sudden exodus from one area and a simultaneous increase in another, it will be possible, by a knowledge of the flyways, to check one observation against the others. Plans have been made to send out full instructions sometime during December.

Tells Radio Audience of Waterfowl Flyways.--The annual kill of ducks must be reduced throughout the United States, but each of us must also stand willing to make special sacrifices to maintain the population of ancestral flyways of the waterfowl that come to our own hunting grounds. Frederick C. Lincoln pointed out in concluding a talk on "Blazing the Sky Trails for Our Waterfowl," broadcast on a nationwide hook-up during the Conservation Day program of the National Farm and Home Hour on November 2. After summarizing the Bureau's studies of bird migration and telling in some detail of the banding method, Mr. Lincoln discussed the knowledge of waterfowl flyways obtained through banding records. Pointing to the significance of the fact that the waterfowl of America use four definite flyways, he said: "The important thing is that the birds are so strongly influenced by their ancestral lanes of migration that they will continue to follow them even though conditions en route or on the wintering grounds may become distinctly adverse to their welfare." Mr. Lincoln explained that this attachment of migratory birds for their ancestral flyways indicates that if the ducks are exterminated in one flyway it will at the best be a long time before that region is repopulated, even though ducks of the same species from other flyways continue to return to the great breeding grounds of the north. "Today," he warned, "we have indisputable evidence that the waterfowl of America have seriously decreased in numbers throughout the continent and, consequently, that we must take special precautions to prevent the extermination of these valuable species. But, in the light of what we have learned about the birds' attachment for their ancestral flyways, we must go further than that--we must prevent the extermination of the species in any of the four major regions."

Food Habits Research

Observes Waterfowl Conditions on Atlantic Coast.--Clarence Cottam left Washington on November 7 to observe the present status of waterfowl along the coast of the Middle and North Atlantic States from Virginia to Maine, and reports an alarming scarcity of waterfowl in this region with local concentrations in a few favorable areas. The scarcity was particularly noticeable in the New England States and affects especially the black duck, which in the past has been the dominant species there. It appears that the severe winter last year was fatal to a great many of these birds. While in Maine, Mr. Cottam inspected a proposed woodcock refuge area and made further studies of the eelgrass along the coast. He found that much of the apparent improvement reported during the summer had not been maintained, some areas showing an improvement while others do not. He returned to headquarters on November 29.

Inspects Wildlife Areas in Mid-West.--From October 16 to 18, Mr. Cottam and J. Paul Miller inspected upland-game restoration projects conducted by the Soil Erosion Service in connection with erosion-control operations in the vicinity of La Crosse, Wis. They later proceeded to Winona, Minn., to observe conditions on the Upper Mississippi River Wildlife and Fish Refuge, after which Mr. Miller went to Minneapolis for conferences at the University of Minnesota relative to game-management problems. Mr. Cottam and Mr. Miller returned to their respective headquarters in Washington, D. C., and Mill Village, N. H., on October 27.

Continue Refuge Surveys.--F. M. Uhler and W. F. Kubichek have continued their survey work of possible refuge sites in the South Central States. After inspecting refuge possibilities in Indiana and Ohio, Mr. Kubichek reported for duty at Washington on November 12, leaving Mr. Uhler to continue work in Missouri and Tennessee and to begin a study of present waterfowl conditions in the lower Mississippi drainage area. Messrs. Uhler and Kubichek report seeing an abundance of cottonmouth moccasins in the coastal marshes of Louisiana last summer, and state that they narrowly escaped being bitten on several occasions.

A. C. Martin and W. W. Bennett have completed examinations of possible refuge sites in Nebraska and have made additional surveys in Iowa and Missouri. On November 1, Mr. Martin left for Oklahoma and Texas on further refuge work while Mr. Bennett initiated similar studies in New Mexico and Arizona. Mr. Martin will spend part of December observing waterfowl conditions in the Gulf States.

Will Note Waterfowl Conditions in Western States.--Charles C. Sperry, of the Denver Food Habits Research Laboratory, has been assigned to check on the status of waterfowl in Colorado during the current season. Theo. H. Scheffer, stationed at Puyallup, Wash., will make a similar check in Washington and Oregon, while Johnson A. Neff will cover northern California and southern Oregon.

Inspects Refuge Areas and Mosquito Control Projects.--Neil Hotchkiss left Washington on November 7 for a survey of refuge possibilities in Maryland, Virginia, Delaware, and New Jersey, and to inspect mosquito-control operations along the coasts of Delaware and New Jersey. He returned to headquarters on November 16.

Inspect Food and Cover Conditions.--After attending the meeting of the American Ornithologists' Union in Chicago, W. L. McAtee and H. L. Stoddard from October 28 to November 1 inspected wildlife food and cover conditions on three tracts for the State forester of Tennessee and also on the Norris Dam tract for the Tennessee Valley Authority, and made recommendations as to their use and improvement. After spending a few days on the territory of the Cooperative Quail Investigation in southern Georgia and northern Florida they went to southern South Carolina, where from November 8 to 14 Mr. Stoddard carried on work for the Quail Study Association and Mr. McAtee made inspections of old rice fields and other marsh areas developed for wild fowl with a view to recommending improvements.

Fur Resources

Visits New York City and Blackwater Refuge.--On November 21, Frank G. Ashbrook visited New York City to discuss with representatives of the fur industry matters affecting the welfare of the industry. In company with Arthur A. Riemer, of the Division of Land Acquisition, he then visited the Blackwater Migratory Bird Refuge, Md., to inspect the work being done with PWA funds at the fur-animal station and to discuss with Peter J. Van Huizen, acting supervisor of the refuge, the possibility of taking a census of muskrat houses there this season. The work on the fur-animal station is completed, with the exception of concrete floors and paths, work on which will be postponed until spring.

Attends Annual Meeting of Rabbit Breeders.--Chas. E. Kellogg attended the annual convention of the American Rabbit and Cavy Breeders Association, December 4 to 8, at Louisville, Ky., and discussed recent experimental work performed at the Rabbit Experiment Station. He illustrated his talk with charts and graphs and also exhibited raw and dressed rabbit pelts. In connection with the convention, the rabbit breeders staged a show in which live rabbits of many breeds and varieties were shown.

4-H Rabbit Club Elects Officers.--At a recent meeting of the Fontana Cloverleaf 4-H Rabbit Club, held at the U. S. Rabbit Experiment Station, Allen E. Suitor, agent, was again chosen as leader. The club adopted a program of work for the year and forwarded it for approval to the assistant farm advisor of San Bernardino County, Calif.

Attends Meeting of Fox Farmers.--Dr. Karl B. Hanson, director of the Fur Animal Experiment Station, at Saratoga Springs, N.Y., attended a joint meeting of the New York State and Pennsylvania Fox and Fur Breeders Associations, held at Williamsport, Pa., November 16 to 17. He talked informally on the crossbreeding experimental work being conducted with foxes at the station and explained the economic importance of this work in connection with the production of cross-fox pelts. The crossbreeding work is nearing completion, and Dr. Hanson is preparing a paper for publication on the subject.

Disease Control

Explains Disease Control to Fur Breeders.--At the request of the association officers, Dr. J. E. Shillinger addressed the joint meeting of the New York and Pennsylvania Fox and Fur Breeders Associations, which, attended by about 200 members, was organized especially as a school of instruction, with specialists giving addresses on technical features of fur production. The speakers also led discussions on the general

subjects, and the prolonged succession of questions displayed the desire of the members to procure direct first-hand information from responsible sources. The officials, as well as many individual members, expressed appreciation of the work the Bureau is doing in their behalf and the assistance furnished at their school.

Research Workers in Animal Diseases Convene.—The Fifteenth Annual Conference of Official Research Workers in Animal Diseases in North America was held in conjunction with the U. S. Live Stock Sanitary Association, at Chicago, on December 4. Dr. Shillinger, invited to present a paper, chose as his subject, "Infectious Disease as a Cause of Loss in Wildlife." This is a distinct departure from the usual type of scientific paper regularly offered before this association, which is concerned largely with the losses of domestic stock. There is very evident a growing interest in the diseases of wildlife and their relationships to those of farm stock and human beings.

Studies Diseases of Deer.—During the week of December 3 to 10, Dr. L. C. Morley visited the Pisgah National Forest in North Carolina, where, during the first week of the hunting season he had opportunity for detailed examination of many specimens of deer. The Forest Service, as well as local individuals and sportsmen, cooperated in furnishing facilities for studying the various abnormalities found, indicating infectious, parasitic, and nutritional diseases.

Scattered Outbreaks of Duck Sickness.—A number of outbreaks of botulism have been reported from various parts of the West, but none have been described as being very extensive. One outbreak in northern Manitoba, Canada, was reported by a local investigator as continuing to destroy a considerable number of gulls and ducks, the losses being reported especially heavy among canvasbacks.

LAND ACQUISITION

Inspects Field Work.—In October, Mr. Dieffenbach left Washington and on a trip around the middle-western circuit visited the Crescent Lake Migratory Bird Refuge, Nebr. With William T. Krummes, junior forester of this Division, he also examined the Valentine Lakes area. From Nebraska he went to North Dakota, South Dakota, and Montana.

FERA Acquisitions Progressing.—During the last two months the work incident to the acquisition of refuge areas under the Federal Emergency Relief Administration appropriations has gone forward with gratifying results. Operations have been mostly in North Dakota and Montana, though considerable progress has been made in South Dakota and Nebraska also. Headquarters have been established in Mitchell, S. Dak., with Carey H. Bennett in charge for the South Dakota and Nebraska transactions. Robert M. Rutherford is still in charge at Minot, N. Dak., of all field activities, with Albert J. Rissman as his assistant. Mr. Rutherford returned to the Washington office for a short conference relative to the work in the acquisition areas. He reported back to Minot the 11th of November. A large field force has been employed during this period. These men have been drafted from the localities in which acquisition work is being done and also from the various Federal Land Banks under which they have formerly been employed in appraisal work. They are known in this work as land negotiators; then from the junior forester register have been acquired employees who serve as acquisition aides.

Projects Submitted and Approved.--The following proposed projects have been submitted to the Federal Emergency Relief Administration for approval: Des Lacs, N. Dak.; Medicine Lake, Mont.; Arrowood and Jim Lakes, N. Dak.; White River Migratory Bird Refuge, Ark.; Valentine Lakes, Nebr.; Lake Mattamuskeet, N. C.; Blitzen Valley, Oreg.; Lake Andes, S. Dak.; and Savannah River Refuge, S. C. and Ga. Of the above-listed projects, approval has been received on Des Lacs Migratory Bird Refuge; Medicine Lake Bird Refuge; Arrowood and Jim Lakes; Valentine Lakes; Blitzen Valley; and Lake Mattamuskeet. Surveyors have completed operations on the Lake Mattamuskeet Refuge and are now engaged on work on the White River Refuge.

PWA Work Nearing Completion.--Activities under funds made available from the Public Works Administration are nearing completion. On the Railroad Valley Migratory Bird Refuge, in Nevada, water improvements and fencing work are drawing to a close. Field surveys on the Upper Mississippi River Wildlife and Fish Refuge have been completed, and assembling of notes and preparation of maps are being done in the Washington office.

Movements of Personnel.--Kenneth C. Kern, James W. Barker, T. M. Conrardy, and Donald E. Hare, who have been employed on the Upper Mississippi Refuge, have reported for duty in the Washington office.

Upon completion of the work on the Upper Mississippi Refuge, George Burrell and Marion E. Phillips reported to Minot, N. Dak., and early in December were joined by Urban McElroy and Harvey R. Sexauer. At the same time, M. H. Peterson and Richard F. Dittman reported to Carey H. Bennett at Mitchell, S. Dak.

Heads New Title Section.--Title work in connection with the acquisition of the new refuges is being carried on in the Division of Land Acquisition by a new Section, headed by Benjamin Catchings, of the office of the Solicitor of the Department. In addition to Mr. Catchings, there are at present in this Section Amar Panossian, attorney who comes from the Agricultural Adjustment Administration; and Miss Mary Hennessey, stenographer, of the Solicitor's Office.

MIGRATORY WATERFOWL PROGRAM

Circular Tells of Restoration Program.--Reporting on current progress in the program for restoring to their original use the great hereditary nesting grounds of migratory waterfowl in the United States, Mr. Salyer in Department Circular No. 339, "A Program of Waterfowl Restoration," points out that large areas which have suffered from unwise drainage and from drought are being reclaimed as a partial offset to the rapid decrease in the numbers of waterfowl. The circular outlines the Biological Survey plan and reviews the work already accomplished on several of the refuges that have been established recently. Conservationists, officials, individuals, and organizations in all parts of the country have evinced a spontaneous and helpful spirit of cooperation with the Bureau in this program, says Mr. Salyer. With such cooperation, assistance, and support continuing, the national program of wildlife restoration, he concludes, will make it possible once again for the waterfowl to occupy their hereditary nesting grounds in numbers approaching their former abundance.

Progress Continues in Refuge Work.--Mr. Salyer left Washington on November 24 to make an inspection of proposed refuge sites in the southern parts of the

Mississippi Valley flyway. His work will involve a selective examination of areas in Tennessee, Arkansas, Louisiana, Mississippi, Missouri, Kentucky, Illinois, and Indiana. The combined efforts of the entire personnel of the Migratory Waterfowl Division, together with the personnel of other divisions cooperating in the development of the waterfowl refuge program, are being directed toward an early rounding out of the final plans for the 12 major refuge units. Reports from the respective project directors indicate that the specifications for bids will be submitted to the Washington office not later than December 25, and an early materialization of the plans the Bureau has been perfecting during the past months is anticipated. One evidence of this is that the Minot, N. Dak., office advises that the specifications for the Des Lacs Refuge are now being put into final form for submission for approval.

Additions Made in Field Personnel.---In order to obtain the maximum efficiency in developing the Minnesota, Montana, and North Dakota projects, the twelve field parties, working under the direction of L. M. Winsor, have been augmented considerably. The following men have been recently appointed and assigned to duty with headquarters at Minot, N. Dak.: William J. Boothe, junior civil engineer; Frank Carlson, junior civil engineer; Chas. S. Farr, engineering draftsman; David M. Goodall, rodman; Chas. Hobbs, engineering aide; Lee Ogden Hughes, junior civil engineer; D. P. Miller, engineering aide; and Deming W. Morrison, hydrographic engineer.

Project Office Established in South Dakota.---John N. Ball, project director, supervising the South Dakota and Nebraska projects, has established an office at Mitchell, S. Dak. He reports excellent progress and indicates that the complete project plans for the refuges in these States will soon be submitted.

The Architectural Staff of this Division has been enlarged, and the work is being pushed forward with the greatest possible speed under the direction of Amos B. Emory, architect in charge. This unit is designing and drawing up specifications for the headquarters and laboratory buildings to be constructed on each of the major migratory waterfowl refuges. Mr. Emory's staff is as follows: C. Edgar Cope, associate architect; Norman W. Averill, assistant architect; Calvin A. Banwell, engineering draftsman (architect); Kenneth Leroy Haynes, assistant architect; J. Eldredge Miller, engineering draftsman (architectural); P. S. M. Pedersen, associate architectural engineer; Philip Retz, junior architect; and Mrs. Lenore Holbrooke, secretary.

Joins Headquarters Personnel.---Miss Bessie Van Antwerp, formerly with the Corn-Hog Section of the Agricultural Adjustment Administration, is assisting with clerical work in the Washington office.

GAME MANAGEMENT

Division Chief Visits Western Points.---Mr. Young has returned from a field trip through Utah, Idaho, Oregon, California, Arizona, New Mexico, and Oklahoma. In Utah he attended the Forest Service Grazing Conference at Ogden, and visited the Bear River Migratory Bird Refuge, and in Idaho the Division's Bait Mixing Plant, at Pocatello. In Oregon he inspected the "P" Ranch, recently purchased by the Bureau to aid in the full restoration of Malheur Lake as a bird refuge. While in Oklahoma

he made an extended study of conditions on the Wichita National Forest and Game Preserve. En route to Washington he conferred with representatives of the Chicago Academy of Sciences with respect to cooperative work planned with the Biological Survey.

Unusual Wolf Photographs Obtained.--Plans made during the past three years culminated recently in obtaining some excellent photographs of wolves in the wild under natural conditions. These were taken in Madison Parish, in the northeastern part of Louisiana by Mr. Young, assisted by Hunter Andy Ray, and District Agent A. E. Gray, of the Oklahoma-Arkansas District, in cooperation with Tappan Gregory and Frank Dickinson, of the Chicago Academy of Sciences, and Bob Sturgess, of Chicago. The photographs were taken with the use of a modified trap pan, instead of the ordinary pan a double treadle being used. The treadles were so placed at scent posts along located wolf runways, that when stepped upon the contact closed an electric circuit and exploded a flash cartridge, which in turn tripped the shutter of a camera in a nearby tree. It is thought that this is the first time that photographs have been obtained by this method in this country. It is planned that full details of the expedition into Louisiana and a description of the mechanics of the photographic operation will be published jointly by the Chicago Academy of Sciences and the Biological Survey.

Refuge Administration

Pet Antelope Escapes Coyotes.--A recent report states that on his return on November 3 from an official trip to Alturas, Calif., Ernest J. Greenwalt, in charge of the Charles Sheldon Wildlife Refuge, Nev., found two coyotes chasing "Legs," the pet buck antelope. This antelope kept near a cow and her calf, which would drive the coyotes away when they got too close. Mr. Greenwalt threw rocks at the coyotes and chased them over a hill and then went for his gun. When he returned the pet antelope had disappeared, so the next day he began a search for the antelope's body, but was amazed to find that the animal had escaped and returned to the cow, his constant companion for more than a year. The antelope was stiff and sore, and had a gash on his left shoulder, but was otherwise uninjured.

Snake Suspected to Have Been Killed by Skunk.--R. T. Cochran, in charge of St. Marks Migratory Bird Refuge, Fla., reports that on October 9, while en route from St. Marks Lighthouse to a cabin on the refuge, he saw at the side of the road a rattlesnake about 4 feet long, and found to have 6 rattles. Stopping his car to kill the snake, he found it mortally wounded, a small hole in one side of its neck just back of its head, and a large gash in its throat. About three feet away he found a hole about 3 inches in diameter and 6 inches deep, inside which was an egg of some kind and outside were the shells of five other eggs. Tracks showed that a skunk had dug up and sucked the eggs. Mr. Cochran states that there is no doubt that the skunk had attacked the snake. No one but himself was known to have been in the vicinity, and the reptile was not on the road when he passed there a couple of hours earlier.

Transferred to Crescent Lake Migratory Bird Refuge.--Earl Ladd, has been transferred from the Niobrara Game Preserve, Nebr., to the Crescent Lake Migratory Bird Refuge in the same State to take charge of that area in the absence of William T. Krummes, who has been detailed temporarily to land-acquisition work.

Elk Refuge Prepared for Winter.--The hauling of about 200 tons of cottonseed cake to the four storage sheds, built this year under the PWA program, on Green River, Grays River, and the Gros Ventre River in the Elk Refuge section, Wyo., was completed on November 2, and the hauling of about 25 tons of baled hay to these sheds was completed on November 13. Fifteen trucks were used in the work, the Forest Service furnishing seven, the State Highway Department seven, and the State Game Commission one. The Biological Survey furnished the gasoline and oil for the trucks and paid the drivers. By November 17, about 2,000 elk had gathered on the Elk Refuge, approximately 1,000 of them on the Flat Creek and Sheep Creek foothills near the Izaak Walton League Addition.

Disposal of Surplus Big-game Animals --The disposal of surplus big-game animals at the preserves administered by the Biological Survey is now under way in accordance with this season's program. Some of the animals have been sold, but a considerable number of buffalo, elk, and a few mule deer are being transferred to the Flathead Indian Agency, Mont., the Rosebud and Pine Ridge Indian Agencies, S. Dak., and the Fort Totten Indian Agency, N. Dak., for use as meat by needy Indians.

Deer Donated to Niobrara Game Preserve.--Two young white-tailed deer were recently donated to Niobrara Game Preserve, Nebr., one by the Custer State Park, Hermosa, S. Dak., and the other by the city of Fort Dodge, Iowa. The buck that was received from the Custer State Park had been raised on a bottle and was accustomed to running with cattle. It was brought to the Niobrara Preserve on October 18 by Geno A. Amundson, in charge of the preserve. It escaped several times but was captured each time and returned to Niobrara. Early in November, however, it again escaped and when last heard of was headed west up the Minnechaduza Creek. Its present whereabouts are unknown. The other young buck was brought to Niobrara by Mr. Amundson on November 6 and is now in good condition and fully at home with the other deer.

Press Comment on Cape Romain Refuge.--Following are extracts from an article on the Cape Romain Migratory Bird Refuge, S.C., appearing under the heading "Woods and Waters" in the Charleston (S.C.) News and Observer, for October 29: "Harold F. West has returned to the Cape Romain Refuge. His work at this sanctuary and his zeal for the wildlife of the Carolina low-country have been highly commendable. He has made Cape Romain a safe place for the birds, animals, and reptiles which inhabit it, and the terns, pelicans, and shorebirds, the raccoon, mink, and other fur-bearers, as well as the great sea-turtle, find there a haven. . . . The sea-bird colonies at Romain are a sight that the observer will remember always, and they are worth going far to see. . . . We should be glad that the low-country can point to Cape Romain and say that we have one of the finest wildlife refuges on the Atlantic Coast."

Waterfowl Observations on Sullys Hill Game Preserve.--Almost as many geese and about three-fourths as many swans have been noticed about the Sullys Hill Game Preserve, N. Dak., as were observed in the immediate section last year. There have been only about one-eighth as many ducks as last fall, however, and almost no hunting of water birds in the locality this year. In October 478 visitors with 95 cars were at the preserve.

C.C.C. Work on Bird Refuges.---A camp of the Civilian Conservation Corps was established at the Bear River Migratory Bird Refuge, near Brigham City, Utah, October 1, for improvements to be made on the refuge during the fourth period. The contemplated work includes the grading and graveling of dikes, construction of truck trails, graveling of beach line to prevent undue damage from wave action, stream improvement, and planting of food plants. At the present, work has not been much more than well begun, with some construction accomplished on telephone line, truck trails, stream improvement, planting of wild-fowl food plants, and some work in the painting and repairing of buildings at the refuge headquarters. The C.C.C. Camp at the Blackwater Migratory Bird Refuge, Md., was re-established October 1 for the fourth period. The contemplated work at this camp includes construction of truck trails, reduction of fire hazards, ditching, some improvements to administrative facilities, and general improvement of the whole refuge.

Ducks Concentrate on Upper Mississippi Refuge.---The favorable water and food conditions on the Upper Mississippi River Wildlife and Fish Refuge this fall have brought a greater number of ducks to that area than during any fall within recent years. Probably the largest concentration point was the lower Winneshiek closed area in Crawford County, Wis., and old residents stated that more ducks came to that area this fall than for many years. Other principal concentrations were in Wisconsin closed areas in the vicinity of La Crosse, and in an area between Alma and Nelson, which for the past year has been cleared of timber preparatory to its inundation by the 9-foot channel. Hunting was reported as fair. After the season opened most of the ducks sought refuge in the closed areas and enjoyed excellent food conditions as well as protection. The mallard was by far the predominating species, there being far more of these birds than of all other species of ducks combined.

Observations by an Aged Hunter.---During a recent patrol of the Upper Mississippi River Refuge near La Crosse, Wis., Ranger Hall interviewed an 82-year-old waterfowl hunter, who told him that he had formerly hunted for market along the Mississippi River from Wisconsin to New Orleans, and that during one season many years ago he killed a total of 3,700 ducks. He praised the refuge system of closed areas and expressed appreciation of the fact that such a chain of sanctuaries is necessary to future waterfowl hunting.

Cutting of Wood to be Permitted.---Permits are being issued without charge to needy families in the vicinity of the Upper Mississippi Refuge to cut and remove wood this winter from areas where the timber is to be eventually removed in the development of the 9-foot channel. A year ago several thousand needy families similarly obtained fire wood for domestic use. Considerable care is being exercised to insure preservation of timber on the ridges or at the upper ends of the pool areas. The permits require that stump heights shall be in accordance with standards required by the War Department in the removal of timber from pool areas, that no oak shall be cut, that brush shall be neatly piled but not burned (to provide shelter for wildlife), that all wood cut shall be exclusively for domestic use by the permittee and his family, and that none may be sold or otherwise disposed of.

Law Enforcement

E. Bradford Whitehead Dies in Line of Duty.---Fatally wounded by one of three suspected game-law violators on December 8, U. S. Game Management Agent, E. Bradford Whitehead died on December 10 in a Savannah (Ga.) hospital as a result of pneumonia complications. Mr. Whitehead, according to reports received by the Bureau, was motoring with his wife about 14 miles from Savannah when he sighted the three suspects, all negroes, one of whom was carrying a sack containing ducks. As he approached to search the sack, one of the negroes shot him in the chest. The assailant was later shot and killed while running to escape arrest by county police and his two companions were taken in custody. Mr. Whitehead, who was 41 years old, entered the Government service on March 12, 1919, as a deputy game warden and had thus been associated with the Federal enforcement work since the early days of the Migratory Bird Treaty Act. He had long been esteemed by his associates as a fearless and efficient officer, and the Bureau placed a high value on the spirit of cooperation he maintained with the sportsmen and the public in his district.

Upper Mississippi Violators Sentenced.---During the 30 days ended November 18, 34 violators were apprehended on the Upper Mississippi Refuge by Rangers Lundberg, Hall, Lawrence, and Winslow, assisted by Deputies Snyder, Sloane, Frerichs, Lee, Teff, Tabatt, Knopp, and Smith. With the 23 taken earlier in October, 57 cases were secured during the waterfowl hunting seasons for Wisconsin, Minnesota, and Iowa. Eleven of these new cases have been disposed of as follows: Two muskrat trappers, in lieu of a sentence to serve one year in the Milwaukee House of Correction, were placed on probation for two years, and 6 muskrats and 11 traps seized were confiscated. For hunting before sunrise, fines of \$10 each were imposed and costs of \$2.75 each. Illegal possession of mink brought a fine of \$10, with costs of \$3, the fine remitted upon payment of costs. For hunting squirrels without a license a fine of \$50 was remitted upon payment of costs of \$4.24. Hunting migratory waterfowl without a license cost each of two defendants \$10 in fines, costs of \$4.50, and confiscation of the gun used. Illegal possession and sale of game fish brought a fine of \$50 and costs of \$3.98. Hunting without a nonresident license brought on each of two defendants fines of \$50 and costs of \$3.10, the fine imposed against one, who was 20 years of age, being remitted upon payment of costs.

Three Offenders Escape From Jail.---Charged with hunting and trapping without either State or Federal license and with illegal possession of muskrats, minks, and game birds, three alleged residents of Missouri were arrested on the Upper Mississippi Refuge in Buffalo County, Wis., on November 10 by Ranger Hall and Deputy Ranger Frerichs in cooperation with Wisconsin conservation wardens. It was perhaps fortunate that when making the arrests the rangers took their prisoners by surprise, for they were found armed with six guns, all fully loaded. They were encamped in two tents in an isolated area and had also in their possession considerable quantities of canned food, household and camping equipment, clothing, an automobile without license plates but equipped with a siphon and several 5-gallon cans on the running boards, apparently for holding gasoline withdrawn from other cars. All the equipment was evidently stolen. Upon being arrested the three men were taken to the Fountain City (Wis.) jail to await trial, but after being confined there several hours they succeeded in escaping and gaining about a 2-hour start before the bloodhounds could be put on the trail. The fugitives were followed to the bank of

the river, where apparently they had obtained a boat and crossed to the Minnesota side. The dogs picked up the trail on the other side, however, but lost it where it terminated at the main highway to Winona, the fugitives apparently having obtained a ride. Police and sheriffs in the surrounding area were notified and were aided by rangers and State wardens in an intensive but unsuccessful hunt for the fugitives.

Bureau Launches Two New Boats.---Two new patrol boats, both built with Public Works Administration funds for the Biological Survey and the Alaska Game Commission were launched at Seattle in November. The Brown Bear, mothership of a new fleet to serve in Alaskan waters, was launched on November 7, and the Grizzly Bear ran down the ways three days later. Both boats were sponsored by daughters of H. W. Terhune, executive officer of the Alaska Game Commission. Several hundred prominent persons attended the launching ceremonies as the two new craft took to the water. The boats will go into immediate service to aid in the enforcement of laws and regulations protecting game mammals and birds and land fur animals in Alaska.

Flying Squadrons Apprehend Violators.---The corps of deputy game management agents completed the first month of active patrol with gratifying results. This corps comprises the eight regional "flying squads," each being supervised by its regional director. Many calls are received for their assistance from State game departments, hunting clubs, and individuals, and many letters praise their effectiveness. On the Susquehanna Flats, near Havre de Grace, Md., on November 15, evidence in connection with the killing of 86 ducks by three hunters was obtained by two deputy U. S. game management agents. In the bags were 45 scaups, 39 canvasbacks, and 2 redheads. The dead birds, 3 guns, 3 hunting coats, a leather jacket, and 2 hunting licenses were seized as evidence. Another violator was apprehended on the Flats a few days later for killing 2 bufflehead ducks. In Louisiana 2 hunters were apprehended during close season, one of whom possessed 40 coots and 1 duck, the other 150 coots and 1 duck. Both were arrested and required to furnish bond of \$500 each. Two other Louisiana close-season coot shooters were found in possession of 12 and 13 birds respectively. One of these violators leveled his shotgun at Agent Merovka but complied with his command to drop it. Five other hunters were apprehended on shooting grounds in Louisiana with 104 geese and 165 ducks in possession. These individuals have been placed under bond. Three close-season duck and goose hunters in Louisiana were arrested and held in bonds of \$250 each. Other Louisiana close-season cases are as follows: Four for killing ducks, 1 for killing doves, and 1 for killing rails. One other case involved killing meadowlarks. In Texas two gunners were taken into custody after killing 115 ducks, while in Illinois a duck bootlegger was apprehended for killing ducks in close season and placed under bond of \$500. Two Iowa cases involved the killing of ducks in excess of the daily bag limit, and one Wisconsin case the sale of ducks. Two violators in California killed 21 geese the first day of the open season. Many other individuals have been apprehended in other parts of the country. In addition, a number of cases where Federal action was not deemed desirable have been successfully handled in State courts.

Confers with Field Agents and Regional Directors.—Chester A. Leichhardt left Washington early in November and spent part of the month with Regional Directors Tonkin, Janzen, and Moore, Game Agents Creech and Merovka, and several of the newly appointed deputy agents. He states that plans are progressing satisfactorily for better enforcement of the Treaty Act Regulations in the sections visited.

Migratory Bird Hunting Stamp Sales.—Duck stamp sales have shown a gratifying increase, but in a number of States they have fallen far short of the estimates. Through field agents and the cooperation of the field forces of the State game departments many reports regarding persons hunting without the stamp have been received. Each such individual has been written to, and numerous replies have since come in indicating that the stamp had been purchased. Sales of stamps reported up to November 26 totaled 447,000. The full force will continue to check up on hunters to see that they have the stamp.

Illegal Quail Shipments Investigated.—The Survey is endeavoring to trace any illegal interstate shipments of live native quail from Mississippi in cooperation with the game department of that State. All field officers will be on the alert to detect such shipments and to furnish to the Survey any evidence obtained.

Fur Shipments Investigated.—During November copies of 2,226 invoices, made by Bureau agents, relating to interstate shipments of skins of fur animals, were furnished to the game departments of 27 States and Alaska.

Importations

Inspector Again on Duty.—H. S. Swarth resumed duties about November 1 as senior inspector of foreign birds and mammals at San Francisco, after spending several months in British Columbia collecting material for the California Academy of Sciences.

Interesting Shipments Received.—The first large shipment of parrots this year from South America was brought in at New York on November 20 from Corinto, Nicaragua, and contained 100 Panama parrots (Amazona auropalliata). Among the more interesting birds of other species were 2 "Garcia" birds (Himantopus melanurus), 1 "seven-dresses" bird (Poospiza personata), 4 "seven-colored" birds (Thraupis bonariensis), and 3 chiros (Saltator aurantirostris), from Argentina and Brazil. One black Indian cuckoo (Eudynamys honorata) arrived in a miscellaneous shipment from Hamburg, Germany, on November 19. Among interesting mammals were one lion marmoset (Leontocebus rosalia) from Brazil and 15 California sea lions from the Coronado Islands, Mexico.

Predator and Rodent Control

Funds Approved for Control Work on Shelter Belt.—An allotment of \$10,000 has been made available to the Survey for expenditure in connection with the Shelter Belt program of the Forest Service. It is planned to use this fund for further development of control methods against destructive rodent pests throughout the Shelter Belt Region and to ascertain the species and approximate degree of infestation on the areas proposed to plant with seedlings or seeds during the spring of 1935; also to determine to what degree the rodents present on these areas will feed upon the seeds or seedlings of the trees that will be planted. Four investigators

will be employed under the Controls Methods Research Project for the purpose, with headquarters at Jamestown, N. Dak.; Mitchell, S. Dak.; North Platte, Nebr.; and Garden City, Kans.

Hunter Richie Resigns.--District Agent John C. Gatlin informs the Bureau that Agent Hunter I. L. Richie resigned, effective November 17, because of ill health. Mr. Richie had been employed in the predatory-animal control work as a hunter since February 1917. In 1919 he worked 5 months in Oklahoma, and the rest of his service was in New Mexico. During the period of his employment he has taken 1,432 predatory animals, the majority by trapping. The Bureau regrets losing the services of Hunter Richie, who has always been loyal and conscientious in his field work. It is hoped that his health will improve rapidly.

Typhus Fever Controlled by Elimination of Rats.--Roy Moore, director of the Southern (No. 5) Region, reports that prior to the CWA rat-control campaign conducted in Alabama in January, February, and March 1934, typhus fever was increasing rapidly. According to State health-department figures, from March 11 to October 13, 1934, there were 148 cases of typhus fever reported as compared with 600 cases during the same period in 1933. There had been a 300-percent increase each year in 1932, 1933, and for the first ten weeks in 1934 over the corresponding periods of each preceding year. A decrease of approximately 75 percent from March 11 to October 13 is most encouraging.

FERA Control Project Approved in Wyoming.--On September 14, the State relief director of Wyoming approved a predatory-animal control project calling for the employment of 30 hunters and trappers. Experienced men obtained from the county relief rolls are now working under the supervision of District Agent Adolph S. Hamm

Traps and Furs Recovered and Thieves Fined.--For theft of government traps and coyote furs in Rio Blanco County, Colo., two men were apprehended during September. Nine traps and 3 coyote skins were recovered. Upon plea of guilty before a justice of the peace at Meeker, Colo., each was given a 30-day suspended jail sentence and fined \$28.40.

Predator Control Work Discontinued in Michigan.--Because of local opposition to the paid-hunter system and continual interference with the trap lines of hunters working under the supervision of District Agent H. P. Williams, the Bureau withdrew from supervision of predatory-animal control work in Michigan effective December 1. Mr. Williams has been transferred from Michigan to Arizona to act as assistant to B. E. Foster, district agent, with headquarters at Phoenix.

Resigns to Marry.--Miss Ella Frances Henderson, clerk in the Lafayette, Ind., district office, resigned on August 31, to be married. The Bureau wishes her much happiness but regrets the loss of her assistance in handling the office work at Lafayette.

Texas Hunter Uses Coyote Call.--Predatory Animal Hunter C. C. Middleton, of Shackelford County, Tex., reports to District Agent C. R. Landon that he derives a great deal of sport in calling coyotes up within rifle range by using a "call" made of cow horn. Mr. Middleton says that this call works best on cold frosty mornings and that on several such mornings he has killed two coyotes by this method. He depends, however, upon his traps for the major part of his work.

